JUN 28 1928


# IRON TRADE REVIEW

CLEVELAND, O. JUNE 28, 1928


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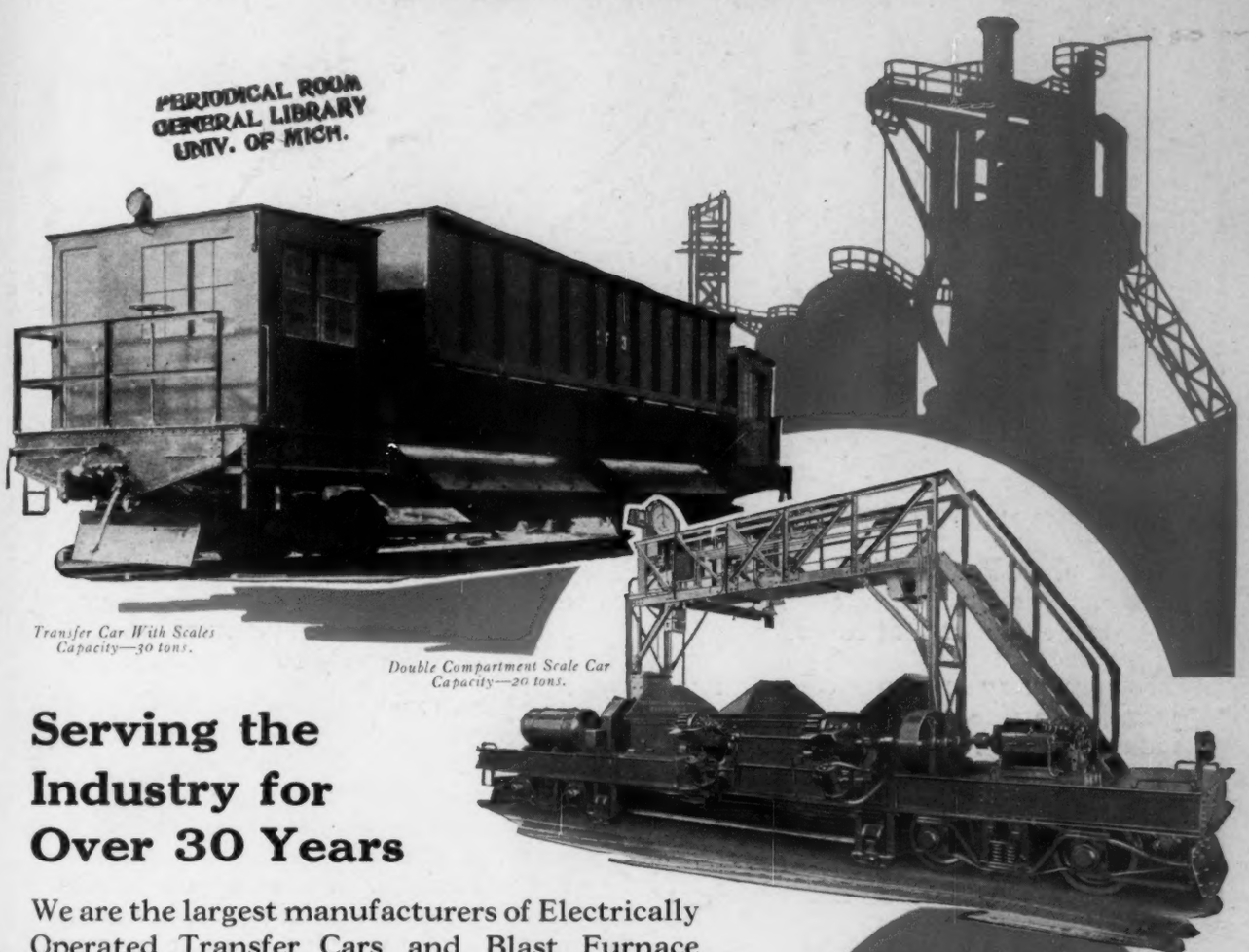

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The illustration shows the S. C. & H. Electric Oven Furnace suitable for temperatures up to 1800 degrees F. Controlled with automatic instruments which maintain the temperatures within the limits of 10 degress plus or minus. This is one of the S. C. & H. type of electric furnaces that turns out a product uniform in quality, in the least possible time and with the least expense.

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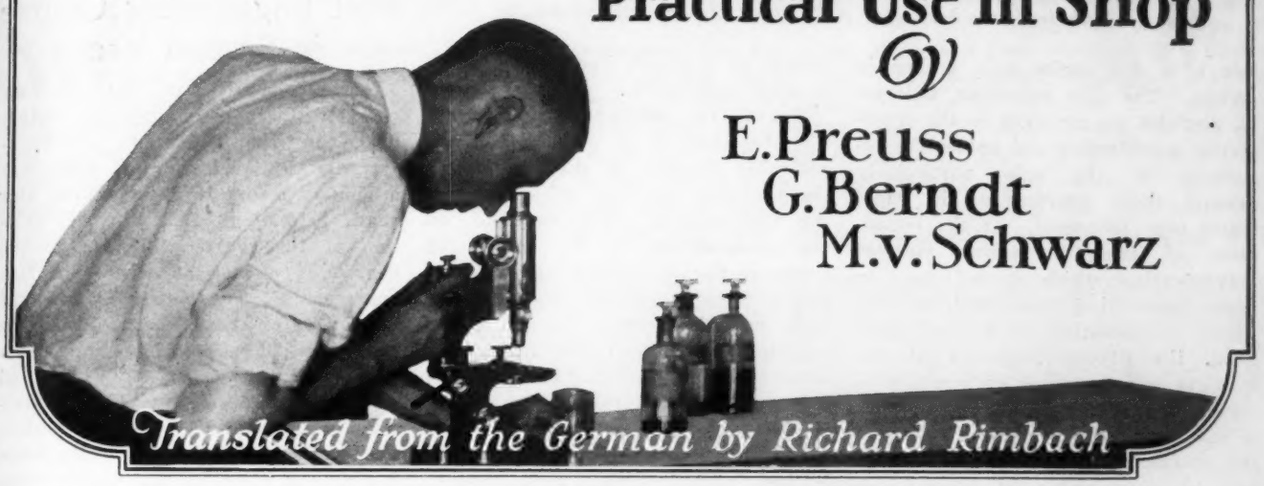
Vol. 82, No. 26, June 28, 1928, issue of IRON TRADE REVIEW, published weekly at Cleveland, Ohio. Entered as second class matter at the post office, Cleveland, Ohio, under the act of March 3, 1879. Subscription prices $6.00 a year in U. S.; $8.50 in Canada; foreign £2:0:0; single copies 25c.

Volume 82
Number 26

IRON TRADE REVIEW

Cleveland, O.
June 28, 1928

# Metallography Simplified for Practical Use In Shop



By
E. Preuss
G. Berndt
M. v. Schwarz

*Translated from the German by Richard Rimbach*

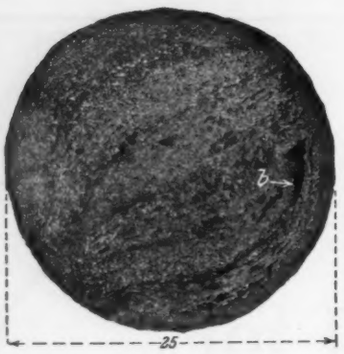
## Chap. II—Wrought Iron

PIG iron tapped from the blast furnace contains among other desirable or undesirable elements such as silicon, phosphorus and sulphur, always a large amount of carbon, 3 per cent or more of which make it unsuitable for mechanical working. The iron must therefore be refined, that is, its carbon content must be decreased by oxidation. In early times, this operation was carried out exclusively in the puddling furnace, an objection to which was that the temperature could not be raised sufficiently high that the iron would remain fluid until the refining was complete. The bloom obtained in a plastic condition had during its manufacture no opportunity to be completely mixed throughout; further, during the process some of the blooms were always more or less protected from the refining influence of the oxidation and therefore showed a variable carbon content. As wrought iron in most cases consists of a number of blooms welded together, differences in the structure are shown by differences in color of the layers after etching. Carbon in the richer layers shows up dark and in the leaner layers, bright. In this manner, it is possible to recognize that the material was welded together from individual pieces. Further, the occasional presence of cracks indicates that the welding was not successful throughout.

*Fig. 1—Cross section of a wrought iron fire engine axle, etched macroscopically. It shows the flaming structure*

The slag formed during the refining by oxidation is not entirely eliminated in the welding of the bloom and it contributes to differences in color in the microstructure; it appears especially dark after etching. The particles of slag arranged in parallel constitute the particular mark of wrought iron. Another distinctive mark is the absence of segregations as pointed out in Part III. One recognizes the slag particles especially well at the large darkly colored areas at *c* and *d* in Fig. 1, which represents the cross-sec-

*Fig. 2—Cross section of wrought iron flat, etched macroscopically. It shows the flaming structure*



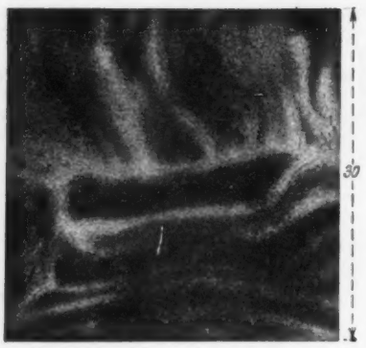




*Fig. 3 (Left)—Cross section of wrought iron round, etched macroscopically. Fig. 4 (Right)—Cross section of weld steel, etched macroscopically*

tion of a fire engine axle broken in service. The slag inclusions, naturally, diminish the strength of the cross-section considerably and reduce the resistance of the axle particularly against shock encountered in rapid travel over pavement. At the boundaries of these inclusions stresses may develop which exceed two or three times that calculated for the whole cross-section. On the other hand, the fibrous structure of the wrought iron possesses certain advantages; it is above all fairly resistant to notches as the slag particles divert the cracks. Aside from certain defects of design and construction which may have contributed to the breaking, the failure of this axle was due largely to the poor material.

### Weld Steel Most Common

Fig. 2 shows the cross-section through a flat iron rod of poor material manufactured from soft steel and wrought iron scrap. In this case, therefore, in the ordinary sense of the word, we are not dealing with wrought iron. The outer layers of the cross-section are wrought iron, the inner lighter colored layers are steel. In line with the composition recognized from the structure of the cross-section, the rod proved to be red short on forging. Due to slag inclusions wrought iron plates are very sensitive to strong heating and to very extensive changes in shape in the warm condition so that they are wholly unsuitable for flange plates, for example.[2] At present only a small amount of wrought iron is made by puddling, the most is manufactured by the welding of all kinds of iron scrap and old material, among which is found principally soft steel. This denotes high sulphur content; on some cross-sections one can recognize on macroscopic etching such inclusions of soft steel as beams or rail sections. The inclusions of old files or chisels in wrought iron of this type is most undesirable.

Due to the differences in color of the structure, it is also possible to recognize changes in shape to which the wrought iron was subjected during its working. For example, on the cross-section of the round rod shown in Fig. 3, not only the different pieces from which the material has been welded together can be easily recognized, but also the manner in which the single layers have arranged themselves on the rolling out of the round rod. The dark place at *b* is a slag inclusion. Fig. 5 shows a cross-section through the tip of a wrought iron crane hook for a 5-ton load. It is plainly seen in what manner the material was displaced by forging. It is recognized that the iron was poorly welded at *a*, for as a result a crack is present.

The material displacements caused by rolling show up more plainly in Fig. 6, the cross-section of a wrought iron rail. Here the different colors of the various layers are seen clearly. In the head, due to the poor welding, a considerable crack developed which would easily lead to serious accidents if the rail was subjected to further use.

Fig. 4 shows the cross-section through a square rod of wrought iron or welded steel, a puddled product having a high carbon content. We have here again the singular flaming structure of the wrought iron, which often was used for the decoration of swords, notably the Damascus and Toledo blades. The decoration was accomplished by etching. In Fig. 4, the areas remaining bright after etching are cementite inclusions in comparison to the light areas of the ordinary wrought iron, which are formed by the ferrite.

[2]R. Bauman, *Zeitschrift der Vereinigten Deutschen Ingenieur*, Vol. 62, 1918. Page 637.

## Fuel Engineering Course in Second Year

So successful was the one-year course in fuel engineering established by the University of Pennsylvania, Philadelphia, last year that a similar course will be offered this year beginning Oct. 1. Completion of the course will lead to the degree of master of science in fuel engineering. The course is intended primarily for those who have had the advantage of a complete undergraduate education of college grade and who have also had practical experience in fields allied to fuel engineering. Requirements for admission stipulate a baccalaureate degree from an institution of recognized standing provided the course pursued included physics and chemistry. In exceptional cases, equivalent qualifications will be accepted. Applications for enrollment should be addressed to the dean of Towne Scientific school.

## Leipzig Fair Announced

The Leipzig Fair, known as the largest trade exposition in the world, is to be held in Leipzig, Germany, Aug. 26 to Sept. 1. The fair will attract buyers from 43 countries, while a score of countries will send some 10,000 exhibits. America will

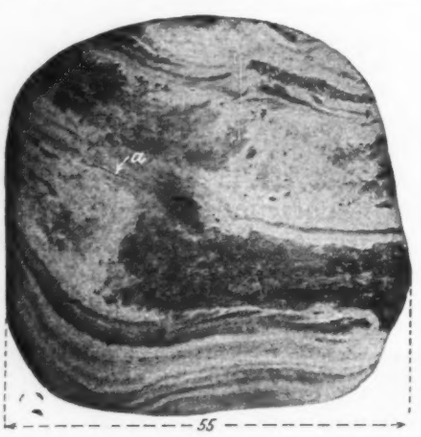


*Fig. 5 (Left)—Cross section of wrought iron crane hook, etched macroscopically. Fig. 6 (Right)—Cross section of wrought iron rail, etched macroscopically. Note the crack at "e"*

send upward of 2000 buyers and some 50 exhibits. The exposition, which includes every product of modern industrial life, is held at the height of the American tourist season and may conveniently be included in a European trip. Information concerning the fair may be obtained by addressing the Leipzig Trade Fair Inc., 11 West Forty-second street, New York.

# Seven-Mile Water Pipe Line Is Longest Welded Carrier in East

WHAT is said to be the longest welded pipe line in the East, the construction and installation of which involves many interesting and novel features, now is being built to supply water to Springfield, Mass. To be known as the Little River main, it will carry water from the Provin mountain reservoir over a distance of seven miles to the city, dropping more than 300 feet in elevation and passing under the Connecticut river on the way.

The new pipe line is being installed by Daniel O'Connell's Sons, contractors, Holyoke, Mass., and Walsh's Holyoke Steam Boiler Co., of the same city is making the welded pipe, using welding equipment and electrodes manufactured by the General Electric Co., Schenectady, N. Y. Completion of the work is expected by fall. From the reservoir to the west bank of the Connecticut river a single line of 54-inch and 48-inch diameter pipe is used. Two lines of 36-inch diameter each are laid under the river and from its east bank a single line of 48-inch and 42-inch pipe connects with the present distribution system of Springfield. The plate used in the pipe varies in thickness from 5/16 to ½-inch.

The pipe is made in 30-foot lengths from two 30-foot plates bent into half cylinders and automatically arc welded together. To facilitate joining sections in the field, the plates are so sheared that the pipe diameter increases slightly from one end to the other, thereby permitting the small end of one section to fit into the large end of the next section. These sections are joined together by welding.

The machine which automatically welds the pipe consists essentially of three horizontal beams, two above the joint and one below. By the use of compressed air, the plates are held rigidly in position during the automatic welding process. Welding is accomplished by means of the multiple-arc process, employing two arcs, one following about 8 inches behind the other. Two automatic welding heads, used to feed the wire, are mounted on a single motor-driven adjustable-speed travel carriage which moves the heads along the work at the proper welding speed. By using two travel carriages with a total of four arcs working simultaneously, a 50 per cent saving in welding time per pipe is effected over that necessary with one travel carriage and two arcs.

Each pipe section, after welding, is subjected to careful tests. A special machine which subjects the pipe to a given water pressure from within is used for this purpose. The pipe is then thoroughly cleaned and dipped vertically in an electrically heated tank of coal tar pitch varnish. This varnish coating protects the pipe from corrosion in service.

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Experiments in the direct production of steel from ore in the electric furnace first were made at Rome, Italy, by Stassane in 1898.

# Improved Bronze Welding Method Aids Joining of Unlike Metals

TO FACILITATE the joining together of two dissimilar metals with a metal filler foreign to both, but without destroying the base structure of any of the three, the Simplex Flux & Solder Co., Cleveland, has developed an easily applied combination powder and flux. The process is known as bronze welding, inasmuch as the filler rod is of bronze. The oxyacetylene torch is used for melting the rod and supplying the necessary heat. With the use of the new powder and flux, it is said that cast iron can be welded to steel most successfully.

In the accompanying illustration the bronze welding of cast iron fittings to a steel storage tank is shown. When finished, it is claimed that the weld proved stronger than the iron and could not be broken. It was possible to dress it down easily with impairing the strength. The work was done below red heat and without preheating, a feature which lends the process to the welding of broken parts in place, or without dismantling the job.

In the case of the tank shown in the illustration, the powder was sprinkled into the chamfer to prepare the cast iron and the steel by decarbonizing the surfaces and cleaning them thoroughly, so that the bronze filler rod could unite firmly in the joint. The flux prevented oxidation of the molten bronze and metal surfaces and permitted a fill that was uniform in quality and free from blowholes. On the finished job, a wire brush removed what little scale had formed.

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Erie Steam Shovel Co. has moved its offices at Pittsburgh from the Farmers Bank building to 1502 Clark building.

# What a Seller Must Do To Interest a Purchasing Agent

By W. B. Calkins

IN BUILDING automobiles the Willys-Overland Co. uses the production assembly line method. We of the industrial world are all a part of this production line, from the beginning of the basic raw materials to the finished automobile, where at this point we assume another important position, that of "Mr. John Customer."

The finished automobile, both as to appearance and cost price is a result of our handiwork. This requires collectively considering our industrial life if we, as "Mr. John Customer," are to enjoy the advantages of automobiles in our daily pursuits.

We also assume another important position, as we are all buyers before we become sellers. In the majority of instances, more than 50 per cent of the invoice price of your stampings applies to raw material.

You are known best through the contact of your salesmen. Are they selected because of their detailed knowledge of your business and affairs, or because of their affability? Can they, and do they convey your message clearly and briefly, or do they consume unnecessary time trying to get the "lay of the land," by general conversation on topics of the day? Not but what the buyer may be personally interested, but if his office hours are to be successfully applied, it must be through obtaining the greatest amount of information in the time available.

From an advertising standpoint, your salesmen should give as interesting an outline of your affairs and the advantages of your services as it is possible, because in reality your salesmen are placing an application for employment in a much greater sense than for a personal position, as it is a collective application for your entire organization.

How would you feel if you were selecting an applicant and he came into your office, with some unnecessary gratuity, and then said: "How's the chances of my getting the job?" Would you be impressed by his ability as a suitable employe? Don't overlook the fact that the seasoned buyer is not influenced in such a manner.

### Compares Buying Condition

As buyers we realize that the salesman approaches us with an attitude of being honestly selfish. We can compare such a condition with that of buying an Oriental rug. The introductory price will be what is often described as the "should get" price, and it is necessary to go through some acrobatic conversation to reach finally the "will take" price. This is not in accordance with the standards of American people, or the foundation upon which American business has been erected.

Fortunately, the so-called "art" of high-pressure salesmanship is becoming obsolete, but where it does exist it can be expected to have about as much effect as the winds out on the prairie, as a buyer would not be suitable for the position he occupies if it was allowed to affect his judgment.

We shall assume that the salesman has reached the place where he is ready to try closing the business. He undoubtedly will make very strong claims that the prices quoted are the lowest that can be offered with any profit; it is extremely necessary that he personally secure the business, and if any other concern quotes lower prices, it cannot successfully continue or they will be unable to furnish satisfactory deliveries and suitable quality. The salesman finally will end up by wanting to know "as a special favor" what price he must quote. If the buyer should consent to give him this information it would not increase the other bidder's confidence in the fair play of American business. From experience, we find that the buyer cannot help becoming somewhat inclined habitually to overlook or discredit such statements.

We have found in numerous instances that concerns who stated they could not make lower prices, have within the year's time returned and quoted prices lower than the one which originally secured the business. An outstanding reason is the difference of 10 to 15 per cent in the quality, kind or amount required of the raw material which various concerns claim is required to produce the article. Please do not overlook the fact that you are the buyer of this raw material, that it constitutes more than 50 per cent of your sales invoice price. You then wonder why

## Questions and Answers

**NOT the least interesting of W. B. Calkins' talk before the Pressed Metal institute at its meeting in Toledo, O., June 7 were his answers to questions which members of the institute asked him, following the presentation of his paper on selling practices. As Mr. Calkins is general purchasing agent, Willys-Overland Co., Toledo, his remarks were of much interest. The article is an abstract of his paper.**

**Question**

*WHAT is your policy toward sending out a large number of requests for quotations? Some firms send 25 or more for every purchase.*

**Answer**

*THERE can be an unwise extreme in either direction. A buyer who sends out a great many requests is wasting his own time and that of his suppliers. On the other hand, there is danger that the buyer and seller will get into a rut. Developments may come in some plants and in some regions which he may not know of. Therefore, without requests for quotations from a number of well selected firms, the buyer might be losing a new opportunity.*

* * *

**Question**

*IN THE development of a new method which means a saving to you, do you feel the firm which makes the suggestion is always treated fairly when requests for prices are sent to a large number of suppliers?*

**Answer**

*WE NATURALLY work with the firms which are studying our problems. It is to our advantage to do so. Our engineers will recommend that firm unless there is a wide discrepancy and even then we feel the original*

the buyer often believes there is a similar difference in the other factors that make up the total price.

Sometimes it may be a case of where the buyer is unable to use such materials unless the price is low enough. We have had such conditions occur, and found that after sales engineers had spent a month with our designers they have quoted a price which would be prohibitive.

Realizing this, we have invited in another concern with a similar construction and within a week, they have quoted materially lower prices, causing an inquiry to be made of the original bidder as to the care exercised in the study of the subject. In three days they have quoted a slightly lower price than the second bidder, tactfully suggested that they desired another interview before the business was placed, and returned two days later, voluntarily quoting a price 30 per cent below their first price. This, without any pressure on the part of the buyer or the creating of a so-called "buyer's market." It indicates that too many times a constructive study of the subject is not carried out.

The buyer is required too often to give his time to your problem when his best interests should be confined to an investigation of lower prices quoted by others, and the forming of judgment as to their ability to furnish the material at a price which is of interest. This is where a salesman who is completely informed and has authority is of value in representing you. It is to the buyer's interest to decide as to a satisfactory connection, because the loss due to holding up production, caused by material not being satisfactory, may greatly exceed the few dollars saved in the purchase price.

The question is often raised: "How is it decided as to who shall have the business when two prices are equal?" Sometimes this depends upon the location of the seller, both in relation to the buyer as well as to the source of his raw material; the past dependability and reputation of the seller, and more frequently as to whether the seller has ever offered any constructive suggestions regarding the articles which he produces.

### Urges Study of Costs

The buyer has been informed regarding costs to as great an extent as anyone connected with the industrial world, but unfortunately cost-keeping follows after the time the article has been produced and only records what has taken place. I believe there is need of development of cost-finding, as conditions which occur in the comparison of prices indicate this is a serious omission. Undoubtedly this is covered at the present time by estimating and planning departments, but much more satisfactory results would be obtained in your business dealings with the buyer if a comprehensive study were made.

To develop cost-finding, it is desirable in considering the article to be quoted on that your manufacturing, estimating and sales departments collectively go over the subject carefully and anticipate how new methods and conditions, which you have perhaps been working on experimentally, can be applied to the production of the article.

The question of diversified manufacturing is often raised. Where it is possible with your available equipment and at times of the year which do not conflict with the peak loads of your present business, it will produce an average condition of operation and overhead charges which is of advantage to yourselves and all those whom you serve.

The question has been asked as to how we can hold business when the buyer may be undertaking to make the products for himself. This can only be accomplished by your developing such advanced methods and economies of operation that your buyer, on analyzing the subject, will find no advantages in producing the article. This policy has been followed by one concern we know of for at least 20 years, even causing them to enter into the manufacture of their own basic materials, and in our opinion they are more firmly established.

The buyer's opinion often is asked as to what effect is created by membership in trade associations. Where the policies and principles of such associations cover a joint study of difficult production problems and improving methods, it would appear that cost-finding can be accomplished successfully, thus creating a joint competitive condition with other lines of manufacture, and it is indeed a worthy object. However, definite consideration should be given to informing the buyer as to the principles and policies of such an organization, for the reason that in the past he has been confronted with associations who were working towards different accomplishments. The basic economic law has certainly taken care of such situations, as 15 per cent charges above the fair price have eventually turned into charges 10 per cent under fair prices, brought about by new concerns entering the lucrative field, or more generally by other lines of industry developing products which supersede those in use. In one case we know of the pressed metal industry developed products, replacing other materials, and thus assisting in bringing about this condition.

We must constantly be on the alert in the study of improved methods; to eliminate waste, avoid duplication and definitely search out the things which produce the best results for all concerned, which may be described by the expression "cost-finding."

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*firm should have every advantage consistent with ethics and good business practice.*

* * *

**Question**

*IN YOUR dealings with sellers, does their activity or membership in a trade association have any consideration?*

* * *

**Answer**

*NONE directly; favorably, if any. As you know, there have been trade associations which tried to buck economic principles, and the economic principles won out. The minute you try to go too far you open the door to those working on the right basis, and it might take years to recover the ground lost. You might drive your markets to other products or materials and thus lose them. There is a wide and very valuable field for trade associations in the study of efficiencies, cost, market conditions and methods.*

* * *

**Question**

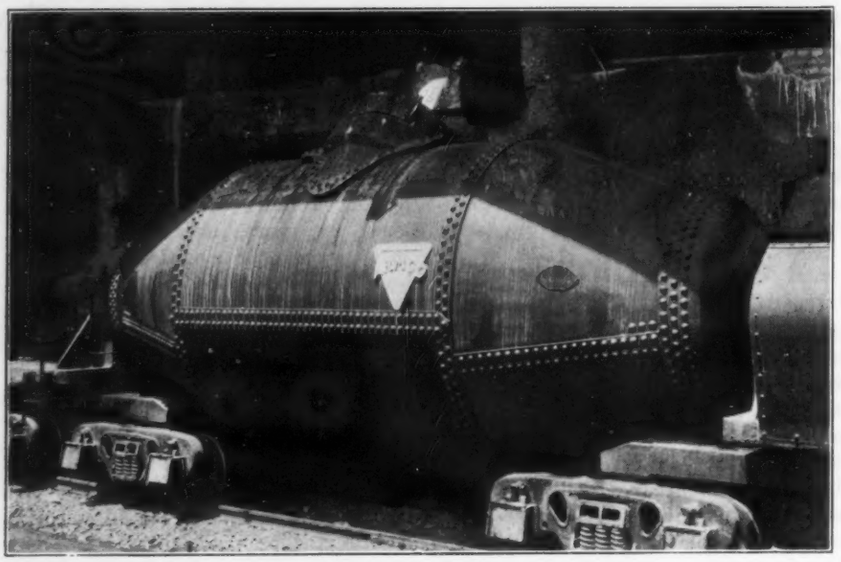
*DO YOU find a trend toward less trading, and more firm quotations?*

* * *

**Answer**

*I AM glad to say there is. We hate trading. More salesmen in the past have chuckled over a long price than buyers have over a sharp buy. Too sharp a buy or too long a price make for unsettled conditions. We prefer a fair price and stable conditions.*

*Too many suppliers and also too many buyers are too self-satisfied. They get into a rut and take things for granted. Take a job that has run in your plant for a year or so; do you study to keep it, the same as you studied to get it? Do you realize that probably some other supplier is studying that job and the better the job the harder he is studying it. Now you have the advantage because you have the job but if the other fellow works out some betterment he might be entitled to it just as you were.*



*Mixer-type ladle which when loaded weighs 340 tons*

# Transports Molten Metal 10 Miles from Blast Furnace to Steelworks

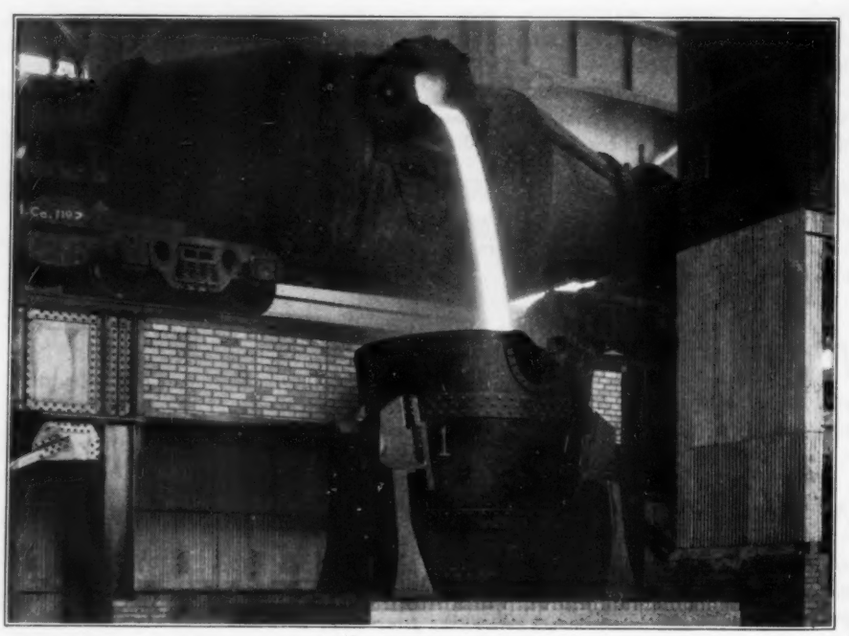
MOVEMENT of hot metal from the stack of the Hamilton Coke & Iron Co., Hamilton, O., to the East Side division of the American Rolling Mill Co., Middletown, O., by way of a special track built by the Baltimore & Ohio railroad was inaugurated June 25. More than 100 visitors were conveyed in special train from Middletown to the blast furnaces where they saw molten iron cast into a 150-ton mixer-type ladle and sealed. The return trip then was made to the East Side works of the company at Middletown, O., where the iron was poured into the open-hearth furnace. At a luncheon given by the officials of the American Rolling Mill Co., Daniel Willard, president, Baltimore & Ohio railroad; H. C. Blackwell, president, Union Gas & Electric Co., Cincinnati; H. P. Rust, president, Koppers Co., Pittsburgh, and others spoke.

The Hamilton furnace is located on the Toledo line of the Baltimore & Ohio railroad and the steelworks is reached by its Middletown branch, but for reasons of safety and speed it was not practicable to use the present lines, making necessary the construction of a new connection about 3 miles long between the main line and the branch, the reconstruction of the branch and a new connection at the steelworks. In addition to the danger of moving this molten metal over the high-speed main line, the route over the tracks already existing would have allowed the metal to cool too much. These disadvantages are avoided over the route provided by the new connection as it cuts 5 miles off the distance and will be over tracks carrying no passenger service or high-speed trains.

Molten metal will be carried daily over 10 miles of track specially constructed for the purpose. Due to the concentrated load of such large tonnage, it was necessary to design and built a special bridge over the Miami river having almost 50 per cent greater capacity than any other railroad bridge ever built. It requires about two and a half hours to make a round trip to Middletown and there will be an average of four trips every 24 hours.

Remarkable progress has been made in carrying out the construction of this line involving the moving of 300,000 cubic yards of earth to form the roadbed, the making and placing of about 15,500 cubic yards of concrete for the bridge piers and abutments, the manufacture and erection of 3,800,000 pounds of steel in the bridges and the use of about 420,000 feet board measure of lumber in the trestles and bridge floors.

One of the remarkable features of this project is the weight of the cars used for carrying the hot metal. The ladle cars provided for the movement from Hamilton furnace to the steelworks at Middletown are of a new and heavier type than any heretofore used. Their length is about 56 feet, with four axles at each end, or 16 wheels in all, and when loaded with molten iron they weigh a total of over 340 tons. The large engines pulling the coal trains of the Baltimore & Ohio through Hamilton, and these are among the largest locomotives in the country, weigh fully loaded with coal and water about 360 tons or only a little more than the hot metal car. The cars are lined with fire brick and provided with lids something like a giant thermos bottle. The molten metal is poured into them at the furnace and after movement to the steelworks they are tilted so that the metal runs out like so much water. This is accomplished by having the ladle which carried the iron on pivots. The tilting is done electrically and safety is provided by arrangements which permit the electrical attachment



*Molten iron being poured into transfer ladle at open-hearth department at Middletown, O., 10 miles from the blast furnace*

to be made only when the car is at a standstill.

A new electrically-operated gas compressor station was installed for the purpose of pumping coke oven gas, manufactured by the Hamilton Coke & Iron Co., through its gas transmission pipe lines so that this new by-product gas could be used in the cities of Hamilton and Cincinnati, by mixing with natural gas being furnished through the high pressure pipe lines of the Columbia system of public utilities. Not only will the power lines of the Columbia system operate the machinery of the new blast furnace and coke oven installation of the Hamilton Coke & Iron Co., but they will also furnish the power for operating the enormous new plant of the American Rolling Mill Co. at Middletown, O.

## Plan Machine Tool Show for Fall of 1929

Plans for the machine tool builders' exposition in 1929 are outlined in Exposition Bulletin No. 1, just issued by the National Machine Tool Builders association, 826 Provident Bank building, Cincinnati.

It is stated that the spring convention of the association definitely voted to hold another exposition in the fall of 1929 and instructed the president to appoint a committee of five to organize and conduct this exposition. In accordance with this resolution the following committee has been appointed:

Chairman, J. Wallace Carrel, vice president and general manager, Lodge & Shipley Machine Tool Co., Cincinnati; Henry Buker, vice president, Brown & Sharpe Mfg. Co., Providence, R. I.; R. E. Flanders, manager, Jones & Lamson Machine Co., Springfield, Vt.; Robert M. Gaylord, vice president, Ingersoll Milling Machine Co., Rockford, Ill.; and James E. Gleason, president and general manager, Gleason Works, Rochester, N. Y.

This committee met on June 12 and started work. The members felt that the coming exposition should not be larger than the last one. It is stated that experience showed that the last exposition was large enough to engage the attendance of visitors for all the time that was at their disposal.

An order of preference for the admission of exhibits to the 1929 exposition was established as follows:

*First*, machine tool exhibits by members of the National Machine Tool Builders association.

*Second*, machine tool exhibits by American builders, not members of the National Machine Tool Builders association.

*Third*, business press, and direct accessories used exclusively on machine tools such as chucks, small tools, etc.

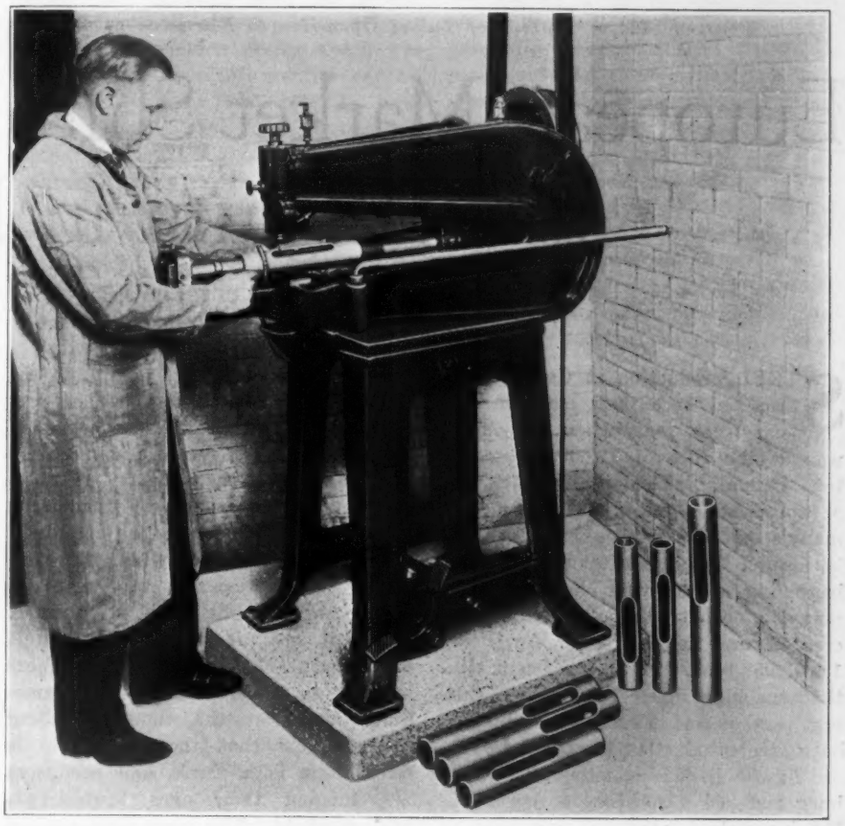
*Fourth*, components and supplies not used exclusively in connection with machine tools, such as antifriction bearings, driving devices, shop supplies, etc.

Space in the exhibition will be allotted to the various classes of exhibits in the order named. Announcement of the time and place of the exposition will be made later.

## Aluminum Drawback Is Made Broader

A former treasury decision providing for the payment of drawback on various aluminum articles manufactured by the United States Aluminum company, of Pittsburgh, with the use of aluminum in crude form, has been extended to further provide for drawback to cover aluminum products manufactured at the Fairfield, Conn., plant of the same firm with the use of imported crude aluminum, aluminum in the form of scrap and various alloys of aluminum.

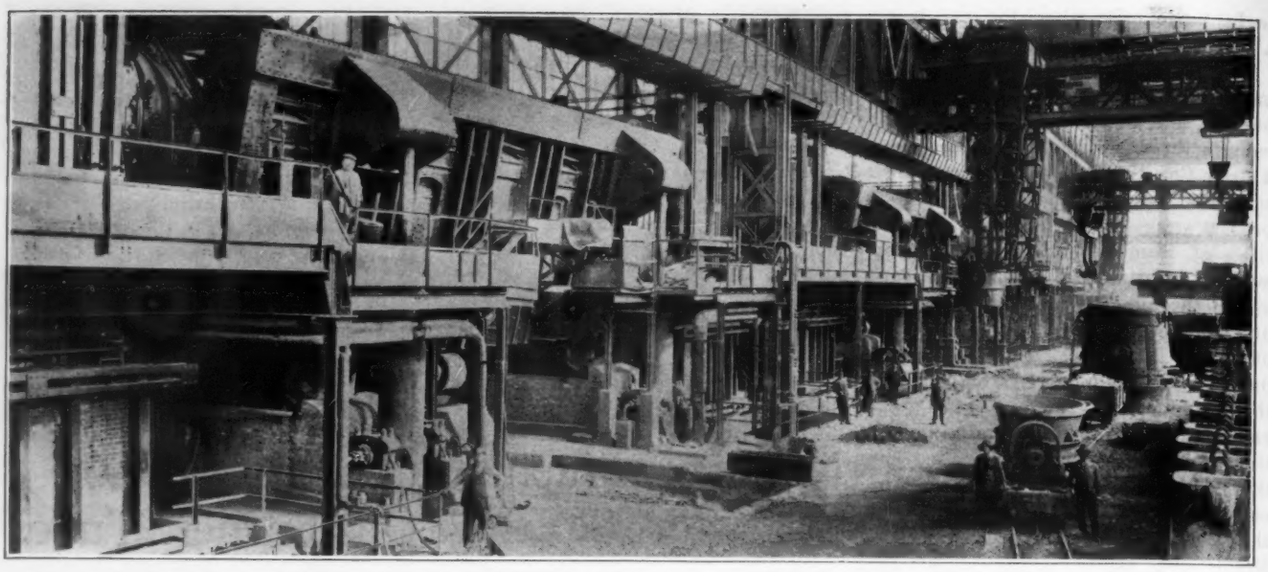
## Nibbling Machine Reduces Time for Slotting Oil Burner Tubes



ONE of the recent adaptations of a nibbling machine is in the production of slotted tubes used in the manufacture of oil burners. The machine for performing this work was built by Andrew C. Campbell Inc., Bridgeport, Conn., and has a special head with outboard bracket in front and a block in the throat of the machine, thus giving an effective throat depth of 16 inches. This equipment may be seen in the accompanying illustration.

According to time studies made after this machine was installed, the operating time necessary for cutting holes in the sides of tubes was reduced from 16 minutes to 40 seconds. A number of the finished tubes are shown in the illustration.

A mandrel is used which closely fits the inside diameter of the seamless tubing being cut. The templet is made up of two half tubes hinged with a quick-acting clamp on the other side, enabling it to be attached quickly to the tube to be cut. The outboard bracket has a quick-acting swing clamp to hold the outboard support for the mandrel so that the tubes are removed very readily. No finishing is necessary, the edge left by the nibbler being practically smooth.



*Pouring Side of Battery of Talbot Open-Hearth Furnaces at Witzkowitz Steelworks, Czechoslovakia*

# European Market Shift Puts France and Belgium in Lead

By Vincent Delport
***European Manager, Iron Trade Review***

STEEL production in Germany had reached its highest mark in January this year, when the output was at the rate of 17,600,000 metric tons annually. Incidentally, this rate of production indicates that Germany's capacity for making steel now is around 18,000,000 tons. Since the beginning of the year, however, Germany's output has gradually decreased, and the figure for April was 1,161,405 tons, or 21 per cent less than the high figure of January. During that period French and Luxemburg steel production increased to record figures in March, although Luxemburg suffered a setback in April. The Belgian output also has remained at a high level. These returns well illustrate the changes in business conditions of the countries referred to, particularly as regards Germany and France.

The steelworks of Germany had shown signs of considerable activity throughout 1927 and, as has been seen, the culminating point was reached in January this year. At the end of last year, however, labor contracts were revised, and the effects of the new conditions now are seen in a series of strikes whenever working hours and wages have to be adjusted at the expiration of old contracts. In all cases satisfaction must be given, at least partly, to the workers. The result is increased production costs, to which must be added the higher prices recently established for coal. Thus the industry is passing through a period of transition, during which it has to adjust itself to changed conditions, and this, following upon a period of great activity, has brought about a reaction. When it was intimated that steel prices would be increased, consumers hurried to cover their more immediate needs at the then prevailing prices. Now that the new scale is fixed there is a check, and producers are turning their eyes toward export markets. The electioneering period which occurred in May apparently did not have much effect on trade, but the result of these elections does not seem to be viewed with great favor by leading captains of industry. A strike of the personnel of the fluvial transport companies, which is not ended as this article is being written, is handicapping export business, as transportation to the ports must be effected by rail at higher rates.

The situation, although less satisfactory than a few months ago, does not present distinct signs of an approaching industrial crisis. Works are well booked with orders taken before steel prices were advanced. An agreement has been arrived at between steel merchants of Westphalia and the Rhine, and it is expected this arrangement will be ratified by the Stahlwerksverband, in which case domestic business would be facilitated. Extensions are being made in the manufacture of wire rods and tin plate. More important still is the development of schemes of considerable magnitude with a view to the economic utilization of coal. The leading iron and steel works are directly interested in these projects, as they control important collieries, and the supply of gas and by-products which they are contracting for with a number of corporations should be an important source of additional revenue. A decrease has been noted recently in the German textile industry, while conditions in the potash industry are satisfactory.

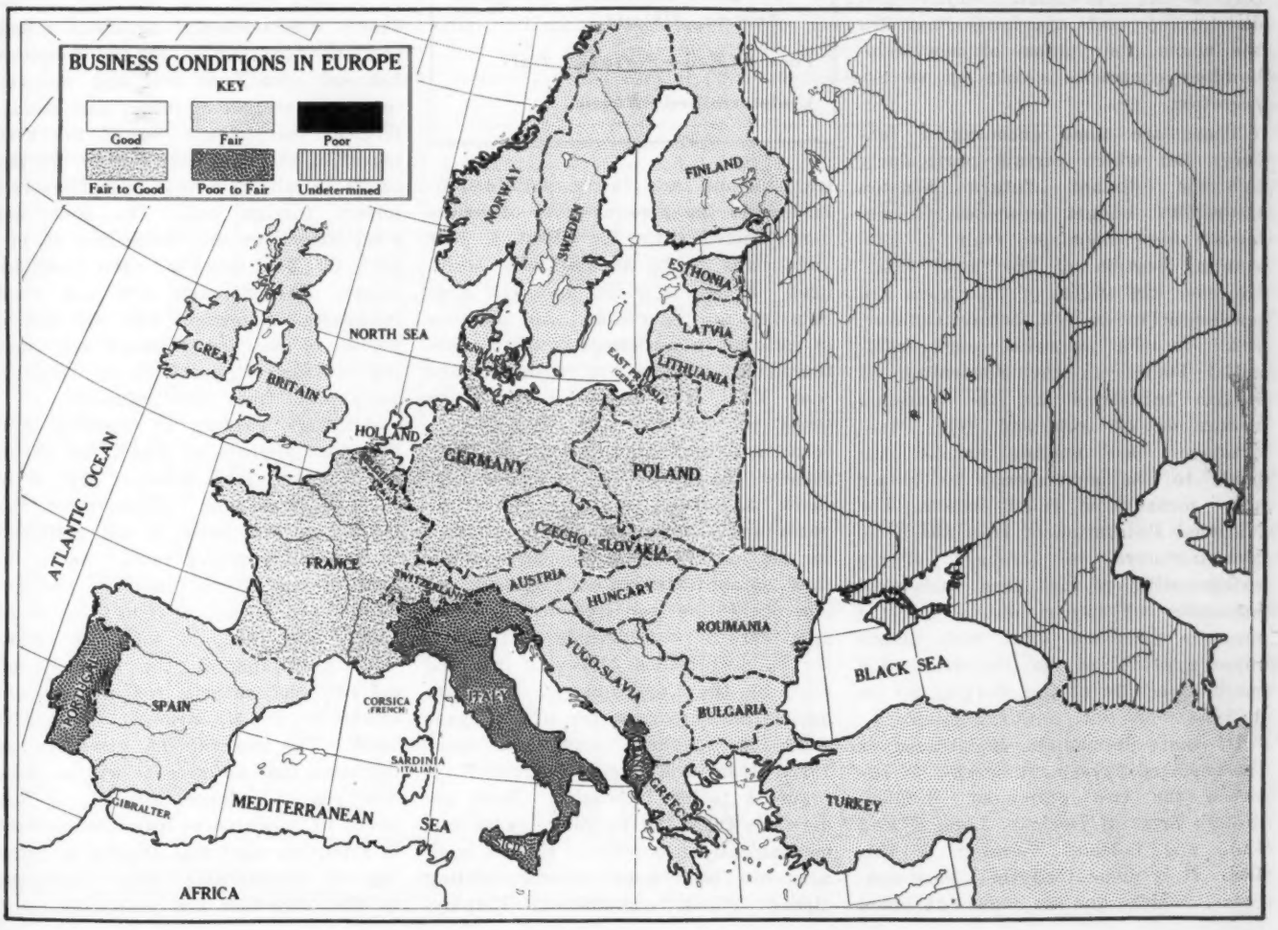
France now appears to be definitely on the way to more stable and prosperous conditions. The troublesome period of parliamentary elections has passed, and the result, inasmuch as it has strengthened M. Poincare's position, is hailed favorably by conservative circles, including the leading iron and steel interests. Although the date when the franc will be legally stabilized is not disclosed, it is con-

fidently expected that the operation will take place during the summer, and that the rate will be definitely fixed at the present level (3.94c). There still are rumors that a further appreciation of the currency will be contrived prior to stabilization, but these rumors are discredited. Such a step would certainly not be conducive to good results from the viewpoint of industry and trade, and it would risk disrupting the equilibrium of the budget.

Although one or two economist experts point out that the buying power of the French consumer has not regained its full elasticity, there is no doubt that the policy of restriction which was being followed since the dark days of 1926 has given place to a more confident attitude and, as a result, industrial activities have considerably increased during the past three months. This is confirmed by the returns of steel production in France since the beginning of the year. The monthly output record was twice broken, in January with 753,000 metric tons, and in March with 804,000 tons. In February the production was 738,000 tons, but in view of the shorter month it will be seen that the average daily output has been increasing from the beginning of the year up to the end of March. In April the output was the same as in February. It is noteworthy that for the first time France has exceeded the quota of steel production allotted by the steel entente, while Germany in April fell below her quota. This emphasizes the modification in the conditions of these two countries.

Both domestic and export business have been active of late in France. There are, however, certain features which are causing concern in some quarters. British pig iron now is competing in the French market, while the consumers of foundry pig iron are expressing dissatisfaction at high prices quoted for the domestic product. Competition in export markets by Belgium also is keen and is forcing French producers to keep their prices down. However, on the whole, the present level of prices, both home and export, is considered sufficient to yield a profit, which was not the case several months earlier. Among industries that recently have made progress are the automobile manufacturers. Works specializing in railroad rolling stock also have registered an improvement, while extensive contracts have been secured relating to the vast schemes of defense for the territory, together with armament contracts, including torpedo boats and submarines, both at home and for foreign countries. One feature of export trade is the decline of business with Great Britain. On the other hand, the demand from South America, the Far East, and India has expanded. Generally speaking, export prices are considered to have reached a level which will probably not be exceeded.

Reports from Belgium and Luxemburg are satisfactory. The volume of orders for steel products from foreign countries is considerable. Both the Belgian and Luxemburg producers have the advantage of being strongly organized for export business. Some of the leading firms have joint organizations which handle their export sales, with offices in the principal cities of the world. All through May prices have been hardening, and the export price of steel bars has about reached prewar level. It is generally recognized that the organization of the steel entente has, by regulating production, assisted largely in bringing about this appreciation of prices. It is true that the world demand has been expanding, but the penalty imposed by the entente upon those members who exceed their quota certainly weakens the temptation to produce beyond the limits of necessity. Belgian boiler works and constructional steel works also report sat-



isfactory conditions. Tenders are being prepared for railroad rolling stock. Taken as a whole, the situation in Belgium now presents a healthy appearance.

Conditions in Great Britain do not show much improvement. The output of steel for the first four months of the year was 2,828,000 tons, compared with 3,357,000 tons in the corresponding period of last year, a decrease of 15.7 per cent. On the other hand, exports of iron and steel during the period considered increased from 1,159,000 tons to 1,403,000 tons, while imports decreased from 1,882,000 tons to 1,095,000 tons. These figures indicate an improvement of the foreign trade situation, but a marked decline in domestic activities. Unemployment figures May 21 were 1,101,000, against 978,176 on May 28, 1927. Generally speaking, iron and steel business has been disappointing, especially in Scotland. Middlesbrough alone registered somewhat better conditions in regard to pig iron. The outlook for the engineering trades in the Birmingham district is encouraging. The position in the shipbuilding centers is more or less satisfactory according to districts. There is some activity at Barrow-in-Furness and Belfast. Work has fallen off on the Clyde, where prospects are uncertain. At Newcastle-on-Tyne and district the yards are fairly busy. On the whole, the volume of new shipbuilding contracts is not up to expectation.

There are some encouraging features, but which pertain particularly to the distant future. Winston Churchill's budget promises to unburden the industries from a substantial portion of the local rates. However, the effects of this move will not begin to be felt before October, 1929. In the meantime such influential bodies as the Federation of British Industries and the National Federation of Iron and Steel Manufacturers are making earnest appeals to the government to obtain some measure of relief sooner. The National Federation of Iron and Steel Manufacturers is strongly urging safeguarding of the iron and steel industries by import duties; such a measure does not meet with unanimous approval of manufacturers, and more especially of the working-up industries.

Of more immediate importance is the reported agreement arrived at between the two prominent Middlesbrough firms of Dorman, Long & Co., Ltd., and Bolckow Vaughan & Co., Ltd. It is understood that these concerns, which already have absorbed a number of smaller subsidiary companies in past years, intend to combine their interests, thus forming a group of considerable importance in the northeastern district of England. Negotiations also are stated to be going on between other concerns, and it is anticipated that eventually four large groups will be organized in the districts of Middlesbrough, the Midlands, Wales and Scotland.

The formation of these groups will result in the elimination of district competition and will also enable the firms interested to reorganize their plant and divide the orders among the works.

The economic conditions of Poland and the industrial countries of central Europe are fairly satisfactory. In Poland the general level of prices has changed little for about a year and seems to be substantially stabilized. Prospects of the iron and steel industry are favorable. An increase in prices is anticipated, after contemplated increase in freights and coal. Coal, iron and steel production tends to increase, and several concerns are making additions to their plant. The Polish iron and steel syndicate has been renewed for three years and the export tonnage allotted to the members is 350,000 metric tons. Manufacturers of agricultural machinery are reported to be busy, and there is considerable activity in the building trades. Sales of iron and steel by the Czecho-Slovak syndicate during the first quarter of the year were the highest registered since 1923. Iron and steel production is reported to be increasing. Most orders are from the building trades and mechanical construction. Export business has been good, notwithstanding strong Polish competition. Employment in Austria is increasing and manufacturers are busy on domestic and export orders. Iron and steel production tends to increase. The leading steel foundries have formed a syndicate which regulates output and prices.

According to a statement of the Italian minister of economy, the Italian iron and steel works are operating at only 50 per cent of capacity. The market continues dull and low prices do not incite consumers to abandon their attitude of reserve. There is some activity in public works, especially harbors and railroads. Naval shipyards find difficulty in obtaining new contracts. The automobile industry is experiencing a difficult period. Important developments are expected in the hydroelectric plants, and arrangements are reported to have been made to secure American capital to finance the new schemes. Iron and steel producers are experiencing competition from Germany, France and other countries. In the meantime Italian works are keenly competing among themselves, with the result that the market shows further signs of weakness.

The coal industry continues to cause some concern in Spain. Recently a special body named general direction of mines and fuel has been created. It depends upon the ministry of industry, commerce and agriculture, and combines the duties of the previous national council of fuel and the autonomous section of mines and metallurgical industries. One of the first moves of the new body was to fix the limits to which various industries can import foreign coal. The iron and steel industries are authorized to import 50 per cent of their requirements. The Spanish iron and steel industries at present are enjoying a period of activity. Orders are coming in from all parts of the country, principally from the railroads.

Although exports of Swedish iron increased slightly in April, the Swedish iron and steel industry still is in a critical condition. Furthermore, the present selling price is not sufficient to cover production costs. As a result of an official inquiry, the experts have issued a report in which they state that, in view of conditions pertaining in the international market, the remedy for the present situation is a stronger protective tariff. The government, however, has indicated that no increase will be made this year. A large increase in exports of machinery from Switzerland is reported, electrical apparatus forming a considerable item. Prospects in this direction are promising.

## European Industry In Better State

**Good**—*Holland.*

**Fair to Good**—*Poland, Belgium, Luxemburg, France, Germany, Switzerland, Czecho-Slovakia.*

**Fair**—*Esthonia, Latvia, Lithuania, Great Britain, Turkey, Rumania, Yugo-Slavia, Bulgaria, Greece, Spain, Norway, Sweden, Finland, Denmark, Hungary, Austria, Albania.*

**Poor to Fair**—*Portugal, Italy.*

**Undetermined**—*Russia.*

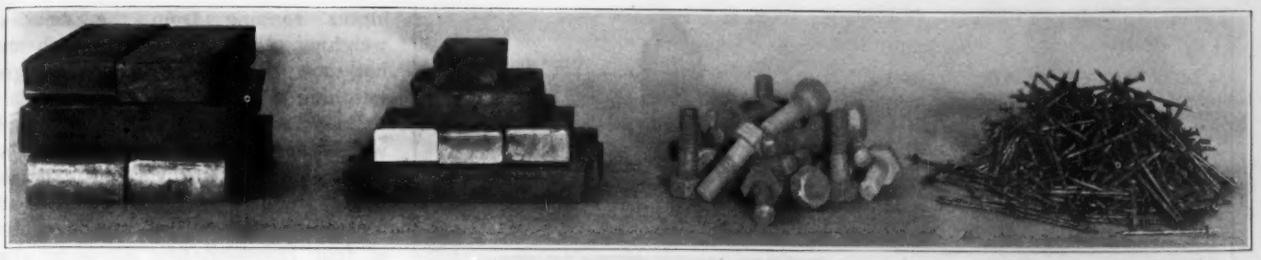


*Fig. 1—Materials used in making tests of air drawing oven included steel blocks, bolts and box nails*

# Electric Carbon Steel Drawing Oven Uses Forced Air Convection

By F. E. Finlayson

THE important factor in the drawing of steel is uniform temperature distribution throughout the work. This requirement is met to a very satisfactory degree in a new electrically heated air-drawing oven which has been developed by the General Electric Co., Schenectady, N. Y.

It is well known that if means are provided for circulating the air in an oven not only is the rate of heating of materials contained therein greatly increased, but also uniformity of heat distribution is secured. This principle has been used for some years in ovens for baking cores and other materials and has resulted in marked uniformity of the baked product.

In applying the principle to small ovens for the drawing of steel it is simply necessary to install in the heating chamber a circulating fan driven by a motor mounted externally. The blast of air from the fan passes all around the work, also between the pieces, and brings it up to temperature in about half the time required to heat the same charge by natural convection in a "still air" oven. Uniformity is also much improved over that attained in the still-air drawing oven. In fact, this improved uniformity is probably the most important feature of the oven, though, of course, the increased rate of heating cannot be overlooked. These features are shown by the curves referred to later.

The general construction of the oven which accomplishes these results is shown in Fig. 3. This illustration shows the location of the fan with its vertical driving motor, the heating units and instrument. The control switch and control panel mounted on the left-hand side are concealed from view by the open door. It will be noted that the method employed of mounting all control equipment on the oven makes it compact and entirely self-contained. The unit is particularly adaptable for location in direct line of production.

The framework of the oven is made of welded steel angles with sheet steel casing. A wall of heat insulating material of suitable thickness entirely surrounds the heating chamber when the door is closed. Radiation tests have shown that the insulation is thorough and the losses low. The oven is economical to operate, not only on large production but also on jobs where production is intermittent, since the amount of power required to keep the oven hot, or ready to receive work at all times, is small—only 0.9 kilowatt hours per hour at 500 degrees Fahr.

The heating units, two in number, are located one each in the top and bottom of the oven. Each unit is rated 2.5 kilowatts at 110 volts. This gives the oven a total input of 5 kilowatts at either 110 or 220 volts depending on

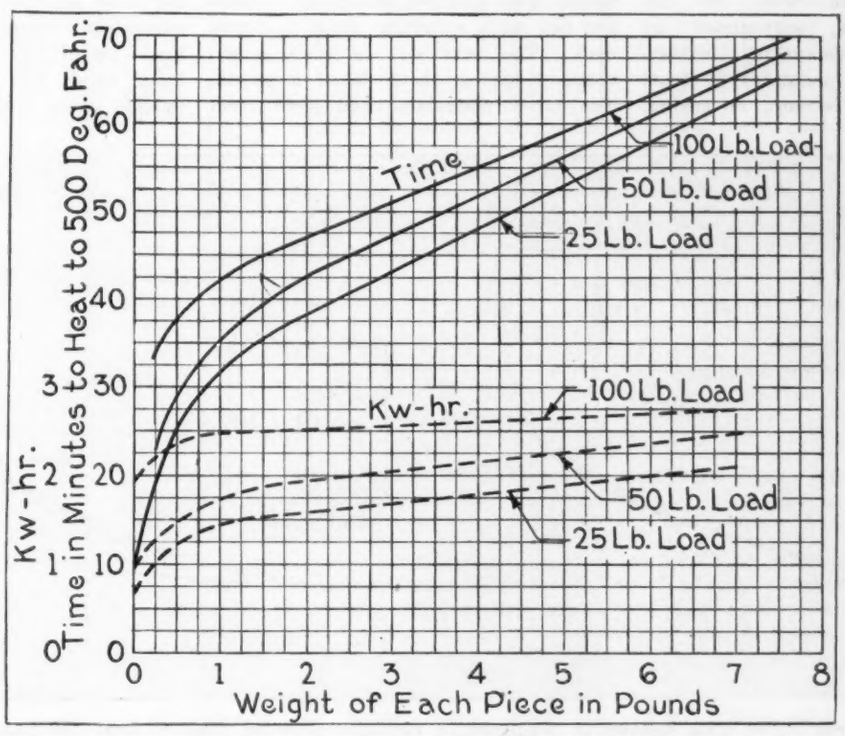



*Fig. 2—Curves showing time and kilowatt-hours consumed in heating loads made up of various sizes of steel pieces to 500 degrees Fahr.*

The author, F. E. Finlayson, is connected with the industrial department, General Electric Co., Schenectady, N. Y.

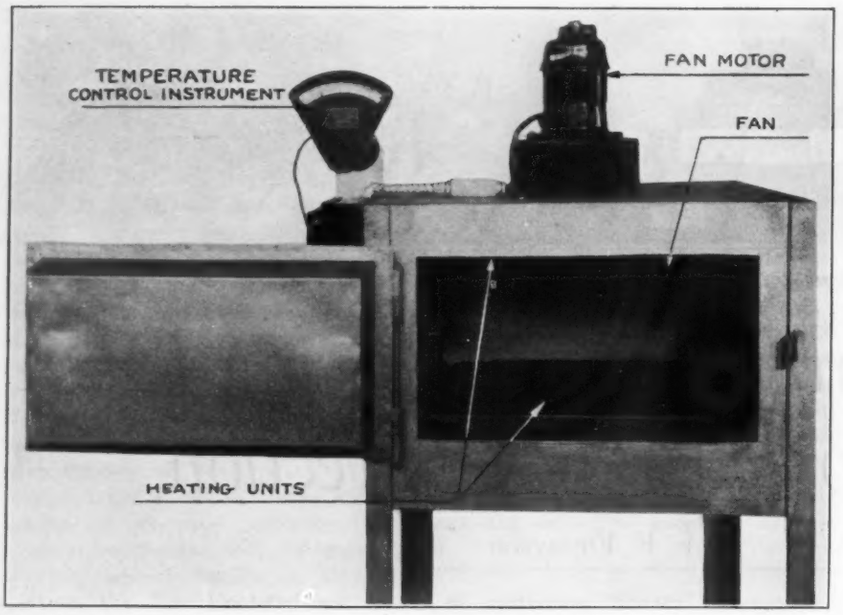



*Fig. 3—View of the new convection electric drawing oven with door open showing motor-driven fan and heating units*

whether the units are connected in parallel on 110 volts or in series on 220 volts. The kilowatt input is sufficient to heat the empty oven from room temperature to 500 degrees Fahr. in 20 to 25 minutes. The power consumption during this warming up period is approximately 2 kilowatt-hours.

### Heating Units Well Insulated

Heating units are of General Electric "helicoil sheath wire" construction, consisting of a heating element of nickle-chromium wire in the form of a helix, surrounded by a dense, highly compacted insulating powder which insulates it from the calorized steel sheath, or casing. The unit, being of strong construction, is well protected against mechanical injury from ordinary service, and, since the heating element is entirely encased, it cannot be short-circuited by coming into contact with metal. This type of unit is well adapted to the temperatures required for the drawing of carbon steels.

Operating tests have been made on the oven to determine the economy and heating rate for various kinds and weights of materials, Fig. 1 shows some of the materials used in these tests. The smallest pieces are standard box nails weighing about ⅛-ounce each. The next size is ½ x 3-inch bolts, weighing about ⅜ of a pound. The other materials used were steel blocks ranging from the smallest, weighing 4/5 of a pound each and not shown in the figure to the largest weighing 6½ pounds each.

Each test was made with a definite weight of one of these materials evenly distributed over an expanded metal tray. Thermocouples were inserted in holes drilled in the centers of four representative pieces to show the distribution of heat in the oven, and also the length of time required to bring the material up to temperatures. These test pieces were in every case placed as shown in Fig. 4. The thermocouples were wired to the temperature recorder through a device which connected the instrument to each couple in succession, allowing 30 seconds for it to record its temperature before passing on to the next. By this means curves were produced showing the maximum and minimum temperatures in the oven at a given time as well as the general trend of all the materials.

### High Uniformity Is Shown

A sample curve taken with 100 pounds of 2-pound steel blocks is shown in Fig. 4. It shows that as the work approaches the temperature of the oven a very high degree of uniformity is attained throughout the load. All tests were made with the oven up to temperature before the material to be drawn was inserted.

The curves shown in Fig. 2 were taken at 500 degrees Fahr. with the fan running. These curves show both the time and the kilowatt hours consumed in bringing a given charge made up of any sized pieces of steel from small box nails weighing 6½ pounds each, from room temperature

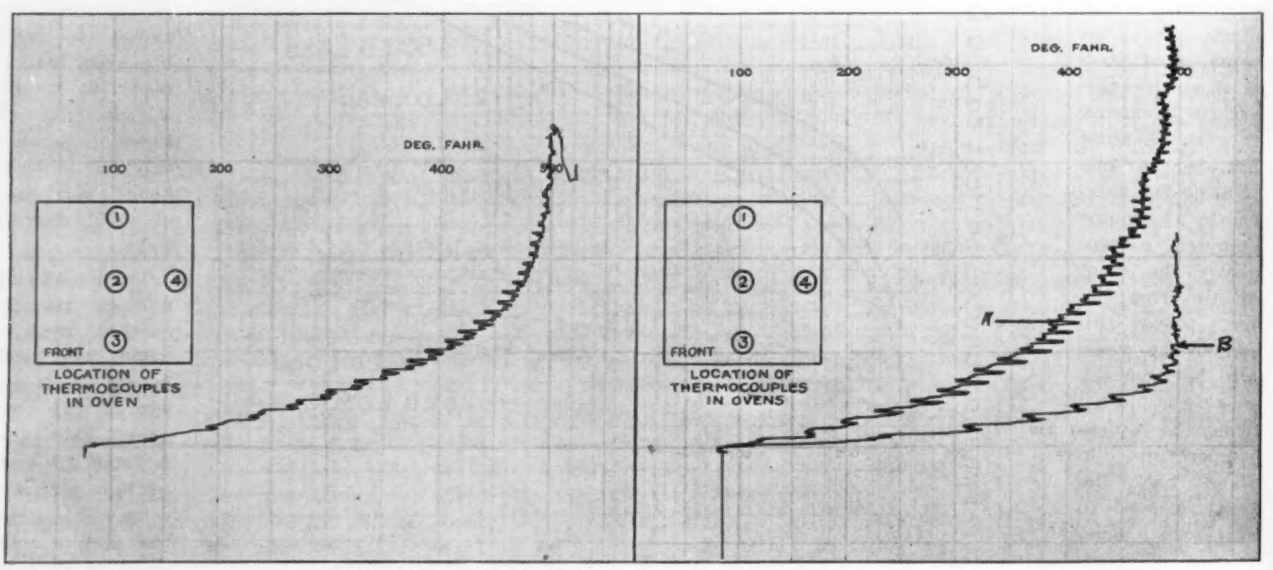



*Fig. 4 (Left)—Curve taken with automatic temperature recorder showing time to heat 100 pounds of 2-pound steel blocks. Material and thermocouples at four points as shown. Fig. 5 (Right)—Curves taken with automatic temperature recorder showing the relative time to heat a charge in the oven—"A" with fan and "B" without fan. Thermocouples located as shown*

to 500 degrees Fahr. Curves are given for each of three total oven loads, namely 25, 50 and 100 pounds. From these curves it is possible to determine in advance approximately how long a given load made up of pieces weighing any amount up to about eight pounds each must be left in the oven to reach the temperature of 500 degrees Fahr.

For other temperatures the time will vary somewhat from that given for 500 degrees, depending upon the temperature and the kind of material. How great this variation is can best be determined by experience with various loads in the oven.

Fig. 6 shows the effect of the fan on the time and power required to heat various loads, as compared to the same load under similar conditions, but without the fan running. From the curves given in this figure it can be seen that time to heat a load without the fan averages about twice the time required to heat the same load with the fan operating. All points on these curves were taken in the same oven and under exactly the same conditions, the only difference being that in one case the fan was idle, while in the other case it was running.

### Fan Decreases Power Consumption

These curves also show that, while the kilowatt input to the oven does not vary quite as greatly with or without fan as does time, there is a decided decrease in amount of power consumed in heating a given load when the fan is running. This is due largely to the reduction in the time required to heat the load which reduces the amount of radiation losses attributable to each load. This results in decreased drawing cost per article where production is more or less continuous.

The curves shown in Fig. 5 were taken with a temperature recording instrument using the method described previously. These curves were taken on 50 pounds of bolts, heating to a temperature of 500 degrees Fahr. Curve A shows the time and temperature distribution on four representative points as shown when heating without the fan. Curve B was taken under exactly the same conditions except with the fan. These curves show not only the great reduction in time required to heat, but also a decided improvement in heat distribution throughout the work.

Advantages of the new method of drawing steel may be summarized as follows:

Heating is rapid and uniform, permitting accurate duplication of results on a production basis.

Losses are low, making the oven economical to operate.

Labor costs for attendance as compared with the "still air" ovens are reduced since less time is required to heat each load.

Fumes, fire hazard, and costs for replacement of the drawing medium and subsequent cleaning met with in the oil or salt bath are entirely eliminated.

Most important of all—heat uniformity within the oven and accurate control of temperature insures that all material placed in the oven will reach the temperature for which the control instrument is set.

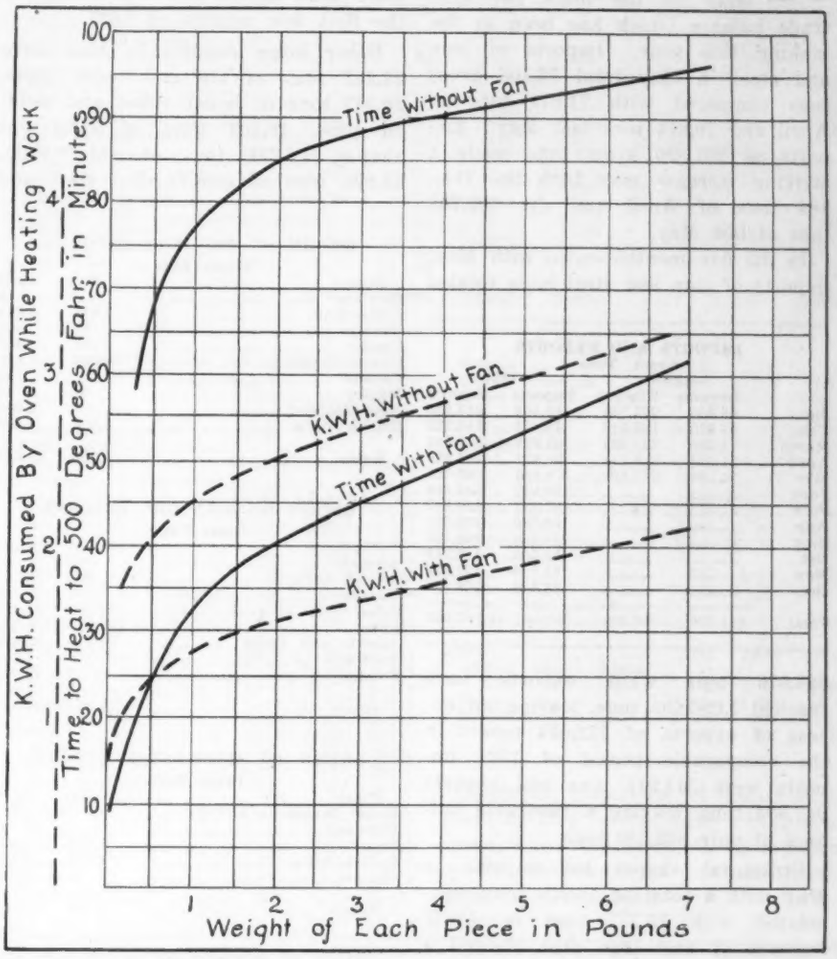



*Fig. 6—Comparative curves showing time and power consumed in heating a charge to 500 degrees Fahr. either with or without fan operating*

## Delay in Steel Code Costs Millions

Building owners in New York are literally throwing away $6,000,000 a year by delay in adopting the new code for steel framing recommended to Mayor Walker. The provisions of the building code of New York governing the permissable working stresses in steel, which is now 16,000 pounds per square inch, have not been revised for about 35 years.

Through improved methods of manufacture, and better control of the chemistry of steel, material by actual test can safely carry 20,000 pounds working stress per square inch. Although the 20,000-pound working stress is widely used, the American Institute of Steel Construction has recommended a change to 18,000 pounds. With this as a basis an entirely new system of standard specifications was drawn up by a committee of representative engineers. Had they been immediately adopted by New York city, a saving of at least $500,000 would have been effected on contracts for new public schools in 1928.

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Of 16 steam locomotives exported from the United States in April, ten went to Canada, three to Mexico and one each to Panama, Peru and China. Six gasoline locomotives were exported, two each to Panama and Philippine islands and one each to Canada and Japan. Panama took two electric railway locomotives and Canada one. Seven mining and industrial electric locomotives were shipped, three to Cuba, two to Argentina and one each to France and Mexico.

# May Exports Advance Sharply

## Rise from 215,184 Tons in April to 267,890 Tons in May Increases Favorable Trade Balance in Iron and Steel—Pig Iron Imports Halve April Total—Scrap Leads All Exports, with Tin and Terne Plate a Poor Second

AMERICAN foreign trade in iron and steel in May continued to build up the more favorable trade balance which has been in the making this year. Imports of iron and steel in May total 72,106 gross tons compared with 71,579 tons in April and 79,814 tons last May. Exports at 267,890 gross tons made a striking increase over both the 215,184 tons of April and the 202,708 tons of last May.

In the five months ended with May, imports of iron and steel have totaled

**IMPORTS AND EXPORTS**
**Gross Tons**

| | —1928— | | —1927— | |
|---|---|---|---|---|
| | Imports | Exports | Imports | Exports |
| Jan. | 58,635 | 205,766 | 63,404 | 215,235 |
| Feb. | 47,628 | 185,915 | 49,451 | 166,128 |
| March | 74,128 | 221,935 | 61,872 | 171,094 |
| April | 71,579 | 215,184 | 60,374 | 192,339 |
| May | 72,106 | 267,890 | 79,814 | 202,708 |
| June | ..... | ..... | 69,017 | 184,364 |
| July | ..... | ..... | 61,112 | 190,502 |
| Aug. | ..... | ..... | 68,386 | 175,636 |
| Sept. | ..... | ..... | 58,464 | 166,352 |
| Oct | ..... | ..... | 52,503 | 170,255 |
| Nov. | ..... | ..... | 61,882 | 177,928 |
| Dec. | ..... | ..... | 64,188 | 168,428 |
| Total | 324,076 | 1,096,690 | 750,467 | 2,180,969 |

324,076 tons while exports have reached 1,096,690 tons, leaving an excess of exports of 772,614 tons. In the comparable period of 1927 imports were 314,915 tons and exports 947,504 tons, leaving a favorable balance of only 632,589 tons.

Structural shapes led imports in May with a total of 16,010 tons, contrasted with 16,577 tons in April. Imports of cast iron pipe showed a sharp increase from 6566 tons in April to 9150 tons in May. Receipts of pig iron in May totaled only 9732 tons against 20,095 tons in April. Steel bar imports in May aggregated 9681 tons contrasted with 8212 tons the month previous. For the five months ended with May imports of pig iron have totaled 63,496 tons against 46,822 tons a year ago; of steel bars 44,570 tons against 41,615 tons a year ago; of structural shapes 74,248 tons compared with 62,773 tons a year ago; and of cast iron pipe 28,992 tons against 40,659 tons a year ago.

On the basis of countries of origin, May imports of iron and steel were highest from Belgium at 19,951 tons. France sent over 16,314 tons, Germany 10,839 tons, the United Kingdom 9183 tons and Canada 7099 tons.

Iron and steel scrap led May exports with a total of 59,417 tons. Thus far in 1928 the United States has exported 185,537 tons of scrap or more than double the 78,599 tons of the first five months of 1927.

Other large exports in May were 22,462 tons of tin and terne plate, 20,447 tons of boiler tubes and welded pipe, 18,498 tons of structural shapes, 18,251 tons of steel rails, 18,823 tons of semifinished steel and 15,272 tons of black sheets.

North and Central America and the West Indies were the United States'

**ORIGIN OF PIG IRON IMPORTS**
**Gross Tons**

| From: | May | April |
|---|---|---|
| Belgium | ..... | 5 |
| Netherlands | 1,888 | 5,204 |
| Norway | 41 | ..... |
| Sweden | 190 | 457 |
| United Kingdom | 4,556 | 8,897 |
| Canada | ..... | 54 |
| Mexico | 31 | 32 |
| New Zealand | ..... | 2,000 |
| British India | 3,026 | 4,196 |
| Totals | 9,732 | 20,845 |

**ORIGIN OF IRON ORE IMPORTS**
**Gross Tons**

| From: | May | April |
|---|---|---|
| Germany | 306 | ..... |
| British India | 1,499 | ..... |
| Canada | 290 | 3,288 |
| Cuba | 33,000 | 26,086 |
| Chile | 141,800 | 120,000 |
| Algeria and Tunis | 34,375 | 57,622 |
| Australia | ..... | 4,614 |
| Sweden | ..... | 13,231 |
| Totals | 211,270 | 224,841 |

**ORIGIN OF MANGANESE IMPORTS**
**Gross Tons**

| From: | May | April |
|---|---|---|
| Soviet Russia in Europe | 7,372 | 3,592 |
| Germany | ..... | 17 |
| Brazil | 6,560 | 6,305 |
| British India | 2,335 | 4,160 |
| Canada | 16 | ..... |
| Totals | 16,283 | 14,074 |

**ORIGIN OF FERROMANGANESE IMPORTS**
**Concentrates**
**Gross Tons**

| From: | May | April |
|---|---|---|
| Belgium | ..... | 39 |
| United Kingdom | 1,551 | 1,374 |
| Canada | 3,468 | 1,079 |
| France | 3,344 | ..... |
| Germany | 31 | ..... |
| Totals | 5,094 | 2,566 |

**ORIGIN OF IMPORTS**
**Gross Tons**

| From: | Steel bars | Steel scrap | Cast iron pipe | Ingots, blooms, etc. |
|---|---|---|---|---|
| Belgium | 5,199 | ..... | 1,619 | 1,793 |
| Czechoslovakia | 20 | ..... | ..... | 4 |
| France | 1,964 | 9 | 7,524 | 1,742 |
| Germany | 1,170 | 13 | ..... | 18 |
| Canada | 7 | 2,006 | 7 | 4 |
| Sweden | 1,213 | 10 | ..... | 135 |
| United Kingdom | 91 | 1,540 | ..... | 16 |
| Italy | 2 | 24 | ..... | ..... |
| Mexico | ..... | 55 | ..... | ..... |
| British West Indies | ..... | 300 | ..... | ..... |
| Austria | 9 | ..... | ..... | ..... |
| Netherlands | 2 | ..... | ..... | ..... |
| Norway | 4 | ..... | ..... | ..... |
| Totals | 9,681 | 3,958 | 9,150 | 3,712 |

**IMPORTS OF IRON AND STEEL**
**Gross Tons**

| Item | May 1928 | April 1928 | January through May 1928 | January through May 1927 |
|---|---|---|---|---|
| Pig iron | 9,732 | 20,095 | 63,496 | 46,822 |
| Ferromanganese and alloys (1) | 5,094 | 2,566 | 18,535 | 10,792 |
| Ferrosilicon (2) | 133 | 367 | 1,345 | 5,400 |
| Ferrochrome (3) | 38 | 36 | 262 | 382 |
| Scrap | 3,958 | 1,953 | 15,126 | 27,930 |
| Iron slabs | .... | .... | 4 | ..... |
| Steel ingots, blooms, billets, etc | 3,712 | 1,635 | 9,812 | 5,509 |
| Steel bars | 9,681 | 8,212 | 44,570 | 41,615 |
| Iron bars | 117 | 355 | 932 | 2,118 |
| Wire rods | 1,824 | 1,075 | 8,298 | 6,002 |
| Hoops, bands and scrolls | 1,368 | 1,586 | 9,306 | 12,259 |
| Boiler and other plate | 482 | 80 | 942 | 2,255 |
| Sheets, skelp and saw plate | 3,247 | 992 | 12,729 | 6,028 |
| Tin plate | 384 | 97 | 550 | 850 |
| Structural shapes | 16,010 | 16,577 | 74,248 | 62,773 |
| Rails and splice bars | 863 | 1,230 | 6,364 | 6,876 |
| Cast iron pipe | 9,150 | 6,566 | 28,992 | 40,659 |
| Other pipe and tubes | 4,125 | 6,211 | 18,282 | 24,909 |
| Barbed wire | 308 | 272 | 1,566 | 2,562 |
| Round iron and steel wire | 239 | 478 | 1,678 | 1,925 |
| Steel telegraph and telephone wire | 82 | .... | 128 | 27 |
| Flat wire and strip steel | 318 | 153 | 1,059 | 1,206 |
| Wire rope and strand | 121 | 92 | 619 | 1,104 |
| Other wire | 46 | 43 | 277 | 229 |
| Nails, tacks and staples | 821 | 688 | 3,155 | 2,471 |
| Bolts, nuts, rivets and washers | 39 | 22 | 126 | 97 |
| Castings and forgings | 214 | 198 | 1,675 | 1,567 |
| Total | 72,106 | 71,579 | 324,076 | 314,367 |

(1) Manganese content
(2) Silicon content
(3) Chromium content

**IMPORTS BY COUNTRIES OF ORIGIN**
**Gross Tons**

| | May 1928 | January through May 1928 | January through May 1927 |
|---|---|---|---|
| Austria | 25 | 148 | 381 |
| Belgium | 19,951 | 93,658 | 90,371 |
| Czechoslovakia | 25 | 888 | 1,067 |
| France | 16,314 | 57,285 | 53,194 |
| Germany | 10,839 | 48,971 | 61,322 |
| Italy | 26 | 138 | 292 |
| Netherlands | 2,101 | 14,500 | 14,606 |
| Norway | 45 | 2,875 | 5,700 |
| Spain | 1 | 1 | 24 |
| Sweden | 3,058 | 10,819 | 9,208 |
| Switzerland | 1 | 24 | 23 |
| United Kingdom | 9,183 | 45,459 | 24,969 |
| Canada | 7,099 | 23,004 | 30,451 |
| Mexico | 88 | 279 | 204 |
| Virgin Islands of U. S. | 3 | 3 | ..... |
| British India | 3,326 | 20,288 | 15,314 |
| China | 1 | 2 | ..... |
| Japan | 1 | 33 | 15 |
| Syria | 13 | 13 | ..... |
| New Zealand | 1 | 2,001 | ..... |
| Morocco | 5 | 5 | ..... |
| Poland and Danzig | ..... | 3,193 | 360 |
| Cuba | ..... | 12 | ..... |
| Denmark | ..... | 204 | 84 |
| Bulgaria | ..... | 2 | ..... |
| Panama | ..... | 381 | 19 |
| Jamaica | ..... | 628 | ..... |
| Hong Kong | ..... | 2 | 5 |
| India | ..... | ..... | 2,336 |
| Other countries | ..... | ..... | 86 |
| Total | 72,106 | 324,826 | 317,252 |

best customers for iron and steel products in May, taking a total of 133,405 tons. Of that amount Canada and Newfoundland alone required a total of 117,338 tons. Shipments to South America totaled 40,326 tons, to Europe 44,276 tons and to the Far East 48,571 tons. Japan and Chosen took a total of 28,007 tons.

Iron ore imports, totaling 211,270 tons, originated chiefly in Chile, which shipped in 141,800 tons. Soviet Russia contributed 7372 tons of manganese ore. Ferromanganese imports aggregated 5094 tons or double the 2566 of April.

Data on May iron and steel exports and imports were compiled by the iron and steel division of the department of commerce, Washington.

### EXPORTS OF IRON AND STEEL
**Gross Tons**

| Item | May 1928 | April 1928 | January through May 1928 | January through May 1927 |
|---|---|---|---|---|
| Pig iron, not including ferro-alloys | 3,701 | 3,701 | 19,655 | 17,676 |
| Ferromanganese and spiegeleisen | 1,060 | 1,324 | 4,523 | 218 |
| Scrap | 59,417 | 40,616 | 185,537 | 78,599 |
| Ingots, blooms, skelp, etc | 18,823 | 7,657 | 51,732 | 27,239 |
| Iron bars | 255 | 613 | 1,660 | 2,029 |
| Steel bars | 13,726 | 12,660 | 56,952 | 49,702 |
| Alloy steel bars | 1,877 | 1,543 | 6,216 | 2,297 |
| Wire rods | 3,501 | 2,711 | 13,661 | 6,987 |
| Plates | 13,163 | 10,043 | 57,197 | 60,226 |
| Galvanized sheets | 14,175 | 12,534 | 64,656 | 71,847 |
| Black steel sheets | 15,272 | 11,681 | 71,088 | 78,093 |
| Black iron sheets | 1,203 | 1,417 | 5,876 | 7,239 |
| Hoops, bands and strip steel | 6,282 | 4,161 | 22,877 | 20,804 |
| Tin plate, terne plate | 22,462 | 19,809 | 102,823 | 134,224 |
| Structural, plain material | 18,498 | 13,653 | 70,517 | 54,478 |
| Structural fabricated | 7,181 | 6,908 | 30,818 | 26,341 |
| Metal lath | 344 | 358 | 1,864 | 1,778 |
| Steel rails | 18,251 | 24,449 | 97,103 | 86,316 |
| Rail fastenings, switches, frogs, etc | 2,637 | 3,786 | 25,576 | 14,974 |
| Boiler tubes and welded pipe | 20,447 | 14,645 | 93,937 | 122,994 |
| Malleable iron screwed pipe fittings | 694 | 740 | 4,290 | 4,483 |
| Cast iron screwed pipe fittings | 624 | 409 | 2,508 | 2,871 |
| Cast iron pressure pipe and fittings | 981 | 270 | 5,755 | 4,672 |
| Cast iron soil pipe and fittings | 1,842 | 926 | 5,998 | 3,262 |
| Plain wire | 3,808 | 3,163 | 19,041 | 13,163 |
| Barbed wire and woven wire fencing | 7,156 | 7,240 | 31,427 | 18,245 |
| Wire cloth and screening | 119 | 84 | 677 | 959 |
| Wire rope | 402 | 267 | 2,148 | 1,999 |
| Insulated wire and cable | 64 | 41 | 252 | 218 |
| Other wire and manufactures of | 969 | 498 | 3,788 | 4,059 |
| Wire nails | 1,830 | 1,790 | 7,307 | 2,991 |
| Nails, other than wire | 716 | 974 | 3,819 | 2,856 |
| Tacks | 56 | 72 | 355 | 399 |
| Horseshoes | 37 | 30 | 179 | 202 |
| Bolts, nuts, rivets, except track | 1,227 | 1,062 | 5,219 | 4,784 |
| Car wheels and axles | 1,501 | 861 | 5,922 | 8,658 |
| Iron castings | 1,030 | 938 | 5,632 | 5,231 |
| Steel castings | 1,180 | 731 | 4,428 | 3,276 |
| Forgings | 1,379 | 819 | 3,677 | 2,391 |
| Total | 267,890 | 215,184 | 1,096,690 | 948,780 |

### DESTINATION OF MAY IRON AND STEEL EXPORTS
**Gross Tons**

| | Rails | Galvanized sheets | Plates not fabricated | Tin, terne plate | Steel sheets black | Barbed wire | Steel bars | Steel scrap |
|---|---|---|---|---|---|---|---|---|
| Argentina | ..... | 361 | 48 | 1,081 | ..... | 1,255 | ..... | ..... |
| Australia | ..... | 17 | 1 | ..... | 88 | 25 | ..... | ..... |
| Brazil | 1,806 | 1,776 | 7 | 1,097 | ..... | 2,047 | 41 | ..... |
| British India | ..... | 295 | ..... | ..... | ..... | ..... | ..... | ..... |
| British Malaya | ..... | ..... | ..... | 150 | ..... | ..... | ..... | ..... |
| British S. Africa | ..... | ..... | ..... | ..... | ..... | 195 | ..... | ..... |
| Canada | 3,767 | 4,498 | 11,695 | 4,183 | 7,849 | 412 | 10,850 | 16,827 |
| Central America | 47 | 486 | 69 | ..... | 3 | 312 | 112 | ..... |
| Chile | 6,184 | ..... | 30 | 323 | ..... | ..... | ..... | ..... |
| China | 299 | 678 | ..... | 2,870 | ..... | ..... | 126 | 890 |
| Colombia | 427 | 774 | 63 | 184 | ..... | 227 | ..... | ..... |
| Cuba | 157 | 206 | 101 | 240 | ..... | 469 | 413 | ..... |
| Dutch East Indies | ..... | 355 | ..... | ..... | ..... | ..... | ..... | ..... |
| Dutch West Indies | 14 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Europe | ..... | ..... | 90 | ..... | 527 | ..... | 59 | ..... |
| Germany | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4,858 |
| Hong Kong | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 246 |
| Italy | ..... | ..... | ..... | 1,037 | ..... | ..... | ..... | 18,972 |
| Japan | 2,775 | ..... | ..... | 5,438 | 5,140 | ..... | 58 | 8,785 |
| Java and Madura | ..... | ..... | ..... | 307 | ..... | ..... | ..... | ..... |
| Mexico | 243 | 1,134 | 38 | 1,058 | 200 | 795 | 40 | 335 |
| Norway | ..... | 106 | ..... | ..... | ..... | ..... | ..... | ..... |
| Peru | 119 | ..... | 14 | 35 | 48 | ..... | 92 | ..... |
| Philippine Islands | 695 | 1,875 | ..... | 854 | 85 | 110 | 235 | ..... |
| Poland | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8,435 |
| United Kingdom | ..... | ..... | ..... | ..... | 107 | ..... | 1,042 | ..... |
| Uruguay | ..... | ..... | ..... | 297 | ..... | ..... | ..... | ..... |
| Venezuela | 261 | ..... | ..... | 1 | ..... | ..... | ..... | ..... |
| | 18,251 | 14,175 | 12,656 | 22,462 | 15,272 | 6,481 | 13,726 | 59,414 |

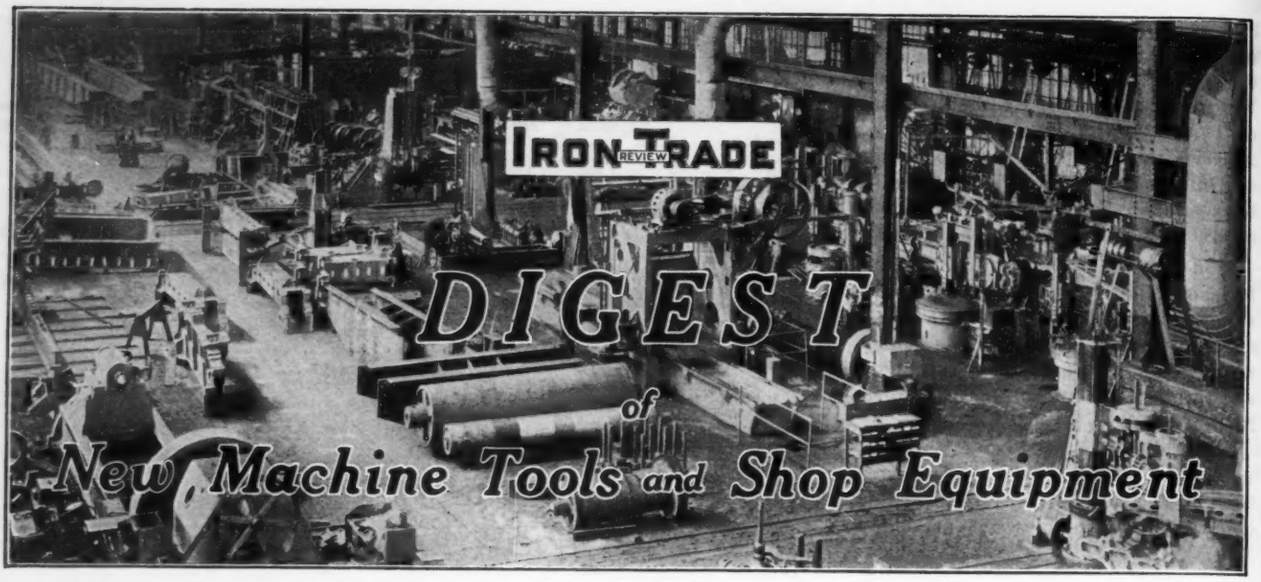
### DESTINATION OF EXPORTS
**Gross Tons**

| County of destination | May 1928 | January through May 1928 | January through May 1927 |
|---|---|---|---|
| North and Central America, West Indies | 133,405 | 526,192 | 462,222 |
| Canada and Newfoundland | 117,338 | 434,323 | 357,063 |
| Cuba | 4,255 | 25,891 | 34,889 |
| Mexico | 7,430 | 31,825 | 37,621 |
| Guatemala | 440 | 5,297 | 3,710 |
| Panama | 998 | 7,061 | 7,567 |
| Salvador | 351 | 1,217 | 2,489 |
| British West Indies | 902 | 5,456 | 6,426 |
| Other West Indies | 863 | 10,451 | 6,240 |
| Other Central America | 903 | 6,771 | 5,917 |
| South America | 40,326 | 184,073 | 160,618 |
| Argentina | 8,768 | 39,369 | 35,171 |
| Brazil | 8,840 | 39,677 | 35,919 |
| Chile | 7,894 | 34,157 | 11,774 |
| Colombia | 5,843 | 29,517 | 28,204 |
| Peru | 1,011 | 11,055 | 13,878 |
| Uruguay | 593 | 3,657 | 6,052 |
| Venezuela | 6,679 | 23,803 | 28,516 |
| Other South America | 698 | 2,838 | 1,104 |
| Europe | 44,276 | 107,906 | 63,961 |
| Belgium | 1,379 | 6,404 | 1,340 |
| France | 553 | 1,969 | 1,753 |
| Greece | 1,255 | 1,405 | 1,003 |
| Italy | 20,178 | 30,639 | 14,013 |
| Netherlands | 263 | 1,151 | 1,468 |
| Russia | 42 | 1,402 | 2,118 |
| United Kingdom | 4,904 | 21,503 | 29,861 |
| Other Europe | 15,702 | 43,433 | 12,405 |
| Far East | 48,571 | 272,258 | 252,646 |
| British Malaya | 629 | 3,281 | 5,214 |
| China | 6,702 | 50,666 | 29,923 |
| Dutch East Indies | 1,863 | 11,135 | 18,610 |
| India and Ceylon | 1,325 | 12,194 | 14,052 |
| Japan and Chosen | 28,007 | 141,185 | 131,151 |
| Kwangtung | 991 | 2,905 | 11,965 |
| Philippine Islands | 7,169 | 40,779 | 20,277 |
| Australia | 648 | 5,991 | 14,111 |
| New Zealand | 102 | 952 | 651 |
| Other Asia and Far Eastern Markets | 1,135 | 3,170 | 6,692 |
| Africa | 1,312 | 6,261 | 9,333 |
| British South Africa (Union of) | 372 | 2,793 | 4,196 |
| Egypt | 881 | 2,456 | 2,178 |
| Mozambique | 12 | 320 | 2,421 |
| Other Africa | 47 | 692 | 538 |

Domestic shipments of water softeners in May totaled 1480 units, compared with 1489 in April, as reported by 21 manufacturers to the department of commerce.

## Exports of Metalworking Machinery
**(In number except where otherwise specified)**

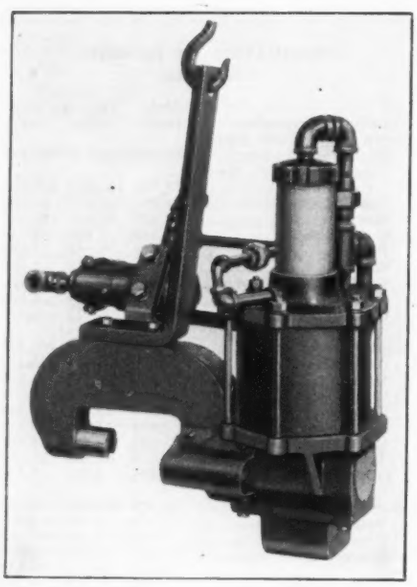
| | May 1928 | May 1927 | January through May 1928 | January through May 1927 |
|---|---|---|---|---|
| Engine lathes | 63 | 52 | 332 | 246 |
| Turret lathes | 60 | 20 | 186 | 79 |
| Other lathes | 41 | 35 | 308 | 174 |
| Vertical boring mills and chucking machines | 17 | 9 | 51 | 49 |
| Thread-cutting and automatic screw machines | 63 | 49 | 357 | 353 |
| Knee and column type milling machines | 22 | 12 | 128 | 100 |
| Other milling machines | 34 | 33 | 256 | 153 |
| Gear-cutting machines | 43 | 42 | 154 | 142 |
| Vertical drilling machines | 23 | 16 | 220 | 115 |
| Radial drilling machines | 10 | 4 | 65 | 32 |
| Other drilling machines | 72 | 196 | 322 | 780 |
| Planers and shapers | 24 | 24 | 183 | 176 |
| External cylindrical grinding machines | 77 | 38 | 386 | 296 |
| Internal grinding machines | 95 | 17 | 249 | 145 |
| Metalworking tool-sharpening machines | 80 | 53 | 262 | 363 |
| Other metal-grinding machines, pounds | 160,094 | 66,574 | 831,880 | 448,444 |
| Sheet and plate metalworking machines, pounds | 701,995 | 634,995 | 2,856,831 | 2,112,676 |
| Forging machinery, pounds | 208,420 | 320,383 | 1,332,019 | 1,528,630 |
| Rolling-mill machinery, pounds | 869,205 | 725,687 | 4,470,166 | 3,471,904 |
| Foundry and molding equipment, pounds | 894,736 | 951,674 | 3,669,558 | 2,928,302 |
| Other power-driven metalworking machinery and parts, pounds | 557,546 | ..... | 4,003,433 | ..... |
| Pneumatic portable tools | 7,706 | 1,458 | 9,171 | 7,305 |
| Other portable and hand or foot operated metalworking machines and parts, pounds | 89,864 | 45,164 | 464,219 | 296,671 |
| Chucks for machine tools | 1,330 | 897 | 5,111 | 7,413 |




## Pneumatic Press Exerts 8-Tons Pressure

ITR No. 157

Hanna Engineering Works, 1765 Elston avenue, Chicago, is offering to the trade a portable pneumatic press capable of exerting 8 tons pressure and weighing only 95 pounds. The press shown in the accompanying illustration has a 2-inch depth of throat, a 6-inch gap and a ⅝-inch die stroke, but is available in several sizes. It is particularly adapted for pressing shackle pins into automobile chassis frames as the frames pass along a chassis assembly conveyor line. The tonnage exerted and the short stroke adapt it to shackle pins that are serrated under the head and have a threaded hole in the head which must not be marred. The mechanism between the air piston and die is of the roller and wedge type which provides a variable leverage or tonnage in close conformity to the work to be done. This with the high frictional efficiency of the mechanism results in a low air consumption.



*No. 157—Light portable pneumatic press*

## Air Compressor Valve Is Cushioned by Air

ITR No. 158

Pennsylvania Pump & Compressor Co., Easton, Pa., is announcing an improved air-cushioned air compressor value, a feature of which is the extreme simplicity of construction. An important item of design is the air cushion pocket in the guard. As the valve opens, instead of striking the guard, the disks enter this air pocket and the air trapped in the pocket provides a cushion which prevents the valve from striking the metal of the guard. It is claimed that this cushion adds much to the life of the valve and its quietness of action. The valve assembly is held together by means of a retaining ring, which engages the

# Iron Trade Review's Calendar of New Equipment

| No. | Item | Builder | Comment | Date Described |
|---|---|---|---|---|
| 137. | Tool holder and bits | O. K. Tool Co. Inc | Heavy-duty; for rough turning | June 7 |
| 138. | Drilling and tapping chuck | Apex Machine Co | Vertical float friction drive | June 7 |
| 139. | Grinding machine | Norton Co | For external, internal and face grinding | June 7 |
| 140. | Automatic screw machine | Davenport Machine Tool Co. | Adapted to new line of work | June 7 |
| 141. | Milling machine | Morton Mfg. Co. | For car journal bearings | June 7 |
| 142. | Draw-cut planer | Morton Mfg. Co. | Heavy-duty; 60-inch side feed | June 7 |
| 143. | Crane protective panels | General Electric Co. | Electrical controls smaller | June 7 |
| 144. | Master switch | Cutler-Hammer Mfg. Co. | For shipper rod operation | June 7 |
| 145. | Saw filing machines | Wardwell Mfg. Co. | For crosscut, rip and bandsaws | June 7 |
| 146. | Die stocks | Borden Co. | 2-inch; self-contained; adjustable | June 7 |
| 147. | Pneumatic riveter | Hanna Engineering Works | For driving duralumin rivets | June 7 |
| 148. | Circuit breakers | Westinghouse Electric & Mfg. Co. | Mounted in steel structure | June 7 |
| 149. | Double radial drilling arm | Hisey-Wolfe Machine Co. | Supports portable drills up to ⅞-inch | June 21 |
| 150. | Sandblast tumbling barrel | American Foundry Equipment Co. | Combination machine featuring apron conveyor | June 21 |
| 151. | Molding machine | Badische Machine Works | Delivers sand by air pressure | June 21 |
| 152. | Motor-driven bench shear | Unishear Co. Inc | Cuts up to 10-gage steel | June 21 |
| 153. | Oil tempering bath | General Electric Co. | Redesigned model; same size | June 21 |
| 154. | Nut driving machine | Procunier Safety Chuck Co. | Drive or removes nuts from threads | June 21 |
| 155. | Crane trolley | Morgan Engineering Co. | 30-ton, worm-type; roller bearing | June 21 |
| 156. | Metal sawing machine | Cochrane-Bly Co. | Larger sizes; uses 42 or 48-inch saw | June 21 |
| 157. | Pneumatic press | Hanna Engineering Works | Weighs 95 pounds; exerts 8 tons | June 28 |
| 158. | Air compressor valve | Pennsylvania Pump & Compressor Co. | Simple construction; air cushioned | June 28 |
| 159. | Monorail track | Louden Machinery Co. | Special section; heavy carrying capacity | June 28 |
| 160. | Tractor mounted welder | Pontiac Tractor Co. | Available in several types | June 28 |
| 161. | Power sheet folder | Jarecki Machine & Tool Co. | Folds 16-gage stock; new design | June 28 |
| 162. | Ladle-nozzle | Joseph Dixon Crucible Co. | Half refractory clay, half graphite | June 28 |

valve guard and seat. Every precaution was taken to provide the greatest factor of safety, thus no bolts, screws or nuts are used in the construction. The air valves are mounted radially at each end of the compressor cylinder. The covers are held in place by four tap bolts.

## Monorail Track Is Made a Special Section

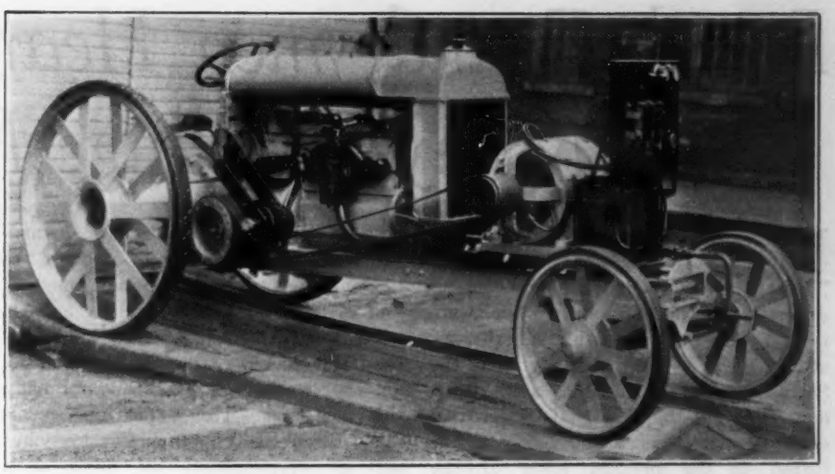
No. 159

Louden Machinery Co., Fairfield, Iowa, has added to its line of industrial monorail systems a heavier track which has a carrying capacity of 3000 pounds. This track is of a special section, approximately 6 inches deep with a 3-inch flange at the top and a 2-inch flange at the bottom. It is specially rolled for track service. New two-way, three-way, cross-track and turntable switches have been designed for use with the track. Not only will the new system handle heavier loads, but it requires less supporting superstructure, due to the fact that hangers can be spaced farther apart. There is sufficient space between hanger grips and trolleys to prevent the two coming into contact, even on swinging loads.

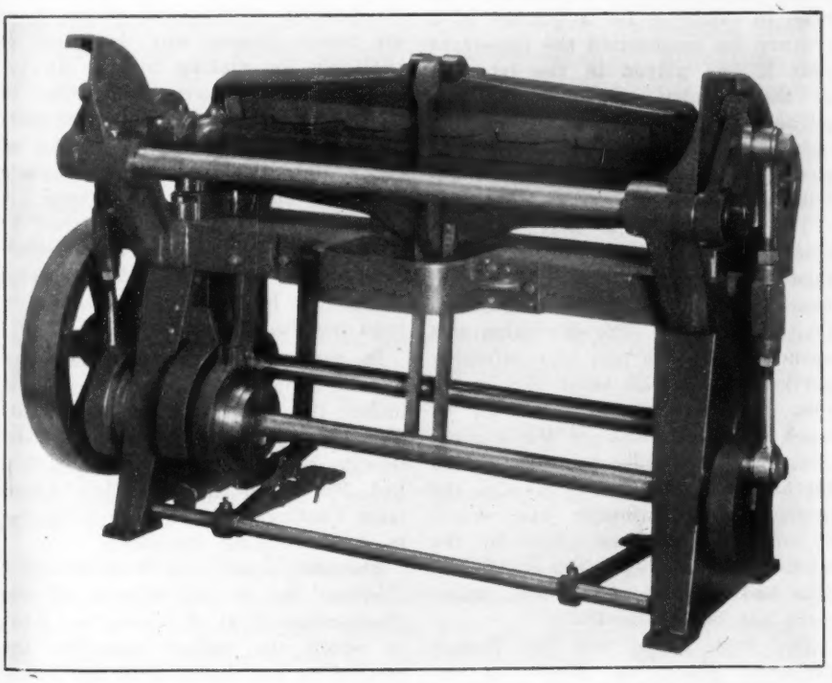
## Provides Tractor Mount for Arc Welder

No. 160

Pontiac Tractor Co., Pontiac, Mich., has announced a new portable mounting for electric arc welding outfits manufactured by the Lincoln Electric Co., Cleveland. As is shown in the accompanying illustration, the welder unit with stabilizer and panel are mounted on a frame which attaches to either the McCormick-Deering or Fordson-type tractors. This mounting gives a 4-wheel rubber-tired self-propelled unit capable of hauling heavy loads behind itself. For soft ground work, the unit is also mounted on crawlers. Power is taken from the tractor to drive the welder through the power takeoff pulley which has a clutch allowing it to be thrown out or into gear at will. The ahead drive of the belt brings the belt tightener into the correct relation with the belt. The manufacturer states that a number of these units have been put out as special equipment over the last four years and have proved successful on pipe line construction and structural steel fabricating.



*No. 160—Arc welding equipment placed on tractor mounting*



*No. 161—This machine folds 16-gage sheets up to 42 inches*

## Machine Folds Sheets Up To 16-Gage Stock

No. 161

Jarecki Machine & Tool Co., 320 Hall street, Grand Rapids, Mich., has designed a new power folder for folding sheet metal up to 16-gage stock. This machine, which is shown in the accompanying illustration, is built so it will fold metal the whole length of the machine. It has a center bearing which takes care of the springing of the machine and will hit just as hard in the center of the sheet as it will on the ends close to the bearing. The machine is connected on both ends of the shaft so it will give an even power all the way across and will not permit the machine to twist while folding. Although it will fold up to 42 inches long, the folder can be built longer if required and we can put as many hinge bearings along the machine as necessary to take care of the springing. Drive can be by either belt or motor drive. Height over all is 42 inches and the floor space required is 30 x 72 inches. Weight is approximately 2400 pounds.

## New Ladle-Nozzle Is of Combination Design

No. 162

Joseph Dixon Crucible Co., Jersey City, N. J., is announcing a new combination ladle-nozzle, the upper half of which is all super-refractory clay and the lower half is graphite. The great advantage of this nozzle, it is claimed, is that the metal can leave the ladle at a much lower temperature than is the practice generally, and thus a more perfect ingot is poured. This is due to the heat retaining qualities of the graphite in the lower half of the nozzle. The new device is made in any size and with flow hole as required.

# British Foundrymen Hear and Discuss Many Exchange Papers

IN PROPOSING the toast to the Institute of British Foundrymen at the annual banquet at Leicester June 13, on the occasion of the twenty-fifth annual convention of the institute, E. J. Fox, director of the Stanton Ironworks, Ltd., and president-elect of the National Federation of Iron and Steel Manufacturers, referred to the present state of the iron industry in Great Britain. He stated that the present output of the British furnaces is barely 60 per cent of the capacity of production, 71 per cent of the 1913 production, and less than the output of 50 years ago. He said that while Britain cannot compete against the Continent in foreign markets, and continental pig iron even finds an outlet in Britain herself, pig iron is produced more cheaply in Great Britain than in any other country in the world, except India. Referring to the iron-founding industries, he suggested that more fuel is consumed in remelting than is necessary, and that at the Stanton works, the consumption of coke is only 6 or 7 per cent of metal instead of the usual figure of 10 per cent. He also suggested that a substantial sum is thrown away by using expensive special irons when, with proper care, ordinary grades could be used.

### New Members Enrolled

The conference was opened by the Mayor of Leicester, who officially welcomed the delegates. The proceedings began with the annual general meeting of the institute, when J. T. Goodwin, retiring president, expressed gratification that a record number of new members had been enrolled during the past financial year, the total number April 30, 1928 being 1729, compared with 1636 a year ago.

Wesley Lambert, chief of the department of metallurgical research, J. Stone & Co., Ltd., Deptford, London, who was elected senior vice president, will preside at the third international foundry congress to be held in London in 1929.

The president announced that the Oliver Stubbs medal had been awarded to J. W. Donaldson, of the Scottish branch, for numerous papers contributed on cast iron. It was then announced that an anonymous donor has devoted a sum of £125 to constitute a fund to be used for awarding annually a series of medals, to be known as the Buchanan medals, and to be given to each junior branch, to be awarded each year to the member who has written the best essay on the work of the branch during the session. This contribution is made to encourage the junior branches and to commemorate the name of a distinguished British foundryman.

The retiring president then inducted Mr. Russell into the chair. Mr. Russell delivered his presidential address.

## Officers Elected

**President**

S. H. RUSSELL
S. Russell & Sons, engineers and founders, Leicester

**Senior Vice President**

WESLEY LAMBERT
Chief metallurgical department of J. Stone & Co. Ltd., Deptford, London

**Junior Vice President**

E. P. WILSON
Director of Pease and Partners Ltd., Middlesbrough

**Elected to the General Council**

A. R. Bartlett, London Branch;
Professor Campion, Scottish Branch
J. R. Hyde, Sheffield Branch
H. Pemberton, East Midlands Branch
J. Shaw, London Branch

Referring to the fact that the Institute of British Foundrymen has now been in existence for a quarter of a century, he emphasized the important part it has played in the interests of the foundry industries and the position of prestige that it has acquired among kindred associations in Great Britain and in foreign countries as well.

The paper at the first technical session Wednesday was "Malleable Castings," by W. T. Evans and A. E. Peace, of Ley's Malleable Castings Co., Ltd., Derby. The discussion was opened by Mr. Murray, who, referring particularly to black heart iron, stated that the essential point is not so much the composition of the original iron, but the conditions under which the annealing is effected. He said the production of malleable iron should be controlled to some extent by the microscope. Good pig iron can finally give bad castings if the heat treatment has been defective.

The first paper was the French exchange paper, on behalf of the Association Technique de Fonderie de Paris. The Subject was "Study of Shrinkage in an Iron Casting," by Maurice Servais, of the Ecole Superieure de Fonderie, Paris. As this paper had not been for a sufficiently long time in the hands of the members, it was decided to conduct the discussion in writing.

The American exchange paper was presented on behalf of the American Foundrymen's association by John Howe Hall, on "Steel Castings for Severe Service." Sir Robert Hadfield, honorary members of the institute had sent a written contribution to the discussion, which was read by V. C. Faulkner. Sir Robert said that manganese steel practice, including its heat treatment, is exactly the same today as it was when he invented this alloy in 1882 and that there is practically nothing to change in the paper that he presented on the subject before the Institute of Civil Engineers in 1888.

### Presents Belgian Paper

The exchange paper of the Association Technique de Belgique was written by Ivan Lamoureux, vice president of the association, and presented by Mr. Faulkner. The subject was "The Cohesibility of Rammed Sand." Opening the discussion, S. H. Russell said that apart from the author's ideas on the position of the sand grains there are many reasons why dry sand is advisable for making molds. In his paper, Mr. Lamoureux says that in America when making cylindrical castings in loam molding, a portion of the pattern is fixed to the spindle arm, against which the sand is rammed. Mr. Russell said that in this respect, he believes that American sand is essentially different from British or Belgian sand and that a bond has to be introduced.

In conjunction with the foregoing papers, a nonferrous session was held under the chairmanship of Wesley Lambert. The paper, presented by George Mortimer, Wm. Mills & Co., Ltd., Birmingham, was entitled "Aluminum Castings Alloys," and gave rise to an interesting discussion.

The last paper was "Iron Foundry Costing," by W. R. Wintle, of the Sheepbridge Coal & Iron Co., Ltd., in which the author describes the method he has installed in the foundries of his company.

# Editorials

***Hot Metal Is Taking Buggy Rides*** ***Now It's "New Buildings for Old"***
***Beauty Speeding Steel into Homes*** ***Mechanization, Standardization, Twins Doubled Crane Sales Lend Encouragement***

## Cast House Whistle Blasts Again

CONVEYING molten metal from blast furnaces to steelworks is accomplished regularly at many plants in this country. Slightly more than a decade ago six to nine open-top ladles each of 15-ton capacity were used to take a cast of iron from a stack to a steelworks mixer. Then came the period of furnace modernization with large smelting capacity and the widespread adoption of 50 to 75-ton ladles to handle the cast. The larger ladles added a spoke to the wheels of economy for fewer vessels were required, less sculling occurred with the resultant decrease in scrap loss and relining charges per ton of metal carried showed a sharp decline.

The haul between the blast furnace and mixer building in the majority of plants seldom surpasses one mile. At Cleveland hot metal is transported by rail from a group of furnaces to a mixer for a distance of 6 miles. This week witnessed the inauguration of hot metal movement between a stack at Hamilton, O., and a steelworks at Middletown, O., a distance of 10 miles. The entire cast of metal is carried molten in a ladle of the mixer type which has a holding capacity of 150 tons and is capable of maintaining the metal in a molten state for a period of 48 hours. Incidentally this container, which is mounted on four special constructed trucks and 16 standard railroad wheels, is said to have the heaviest wheel load of any carrier now in regular service on American railroad lines. The ladle with its full charge of hot metal weighs 340 tons. The locomotive that pulls it ranks as one of the largest in this country, weighing 360 tons, or 20 tons more than the ladle and its contents. Arriving at the steelworks the metal is poured into a transfer ladle and thence into the open hearth.

Not only does the linking of the two plants mark an important event in railway transportation and in plant economy in the way of fuel, labor and time in open-hearth melting practice, but it also revives a blast furnace classed as a merchant stack that otherwise might have been operated on short campaigns because of market conditions or might have been scrapped because of its not being in a position to compete with stacks closely allied with steelworks activities.

## Taste and Style Speed Building

WITH reports that 1928 building construction figures may equal or even surpass the record 1926 totals comes the conclusion that building demand is difficult to appraise at a distance. It is apparent that a surplus of apartment buildings and hotels exists in many cities, yet new projects become attractive business ventures, largely because public demand constantly seeks better accommodations. Typical of what is going on in the building industry is cited in Chicago, where the Merchandise Mart is being started and an apparel center is being projected, the latter to rise 75 stories above the Illinois Central railroad tracks on the lake front. The former structure is to be a headquarters for wholesale merchandising operations.

No actual scarcity of space exists for the occupancy clientele of either of these two projects, yet consolidated housing of such commercial groups makes a strong appeal and offers obvious advantages. Building construction statistics alone fail to give the whole picture of future possibilities in building. Other factors must be taken into consideration. Increasing attractiveness of de luxe and more modern apartments, hotels and office buildings, and the development of public taste along certain lines are among them.

## Art Approves Metal Furniture

UTILITY long has been an argument for the use of steel and other metals for furniture and in office and hotel it has been adopted in large measure. In the home little headway has been made beyond kitchen table tops and radiator covers. The gas range, of metal, has

been decorated recently in enamels and art thus has come to the aid of utility in a small constructive way.

Now comes the pronouncement from Lee Simonson, a modernist designer and architect, who designed the setting for the recent International Exposition of Art in Industry, that the use of wood invariably for modern furniture is as anachronistic as to hand-letter a book with a quill pen. Durability, appearance, convenience, ease of production with economy, all are advantages he sees.

When art comes to the aid of utility the age of general use of steel furniture seems just round the corner. Opportunity seems knocking at the door of the steel industry, pointing to one of its largest potential outlets.

## Standards Aid Industrial Growth

STANDARDIZATION is coming to be regarded as one of the significant achievements of the present era. Few realize the extent to which it has taken hold of details of the industrial regime. Machinery has brought this about to great degree. Standard time was an early manifestation of the need for an arbitrary time plan, made necessary by railroad development. Standard musical notation has been known to all nations for a long time. These show that standardization is a necessity in many fields of endeavor.

The need in other fields is as great, if not as obvious. With the tendency for standardization to expand its scope there is a parallel effort to measure each need, that a standard can be gaged to satisfy accurately such need.

It is growing and its progress is bringing the fullest co-operation of all concerned. Not only does it bring the maker and user into clear understanding of the quality of service but it satisfies the user's needs with greater efficiency and economy.

## Overhead Crane Sales Are Encouraging

ANNOUNCEMENT of a gain of more than 96 per cent in the value of electric overhead crane busines in May comes at a time when such news is especially stimulating to builders of this equipment. Business had been at the lowest annual rate since 1921; and while the approximate figure of $708,145 for May sales in comparison with such banner records as $1,428,875 in October, 1926, and $1,380,064 in December, 1925, it nevertheless is the largest so far this year—in fact, since June, 1927, when orders aggregated $964,000, the highest of that year.

The new figure, compiled by the Electric Overhead Crane institute, brings the total for the first five months up to approximately $2,699,000, which compares with $3,479,000 in the corresponding period of last year. This rate, the equivalent of $6,477,600 for the year, is still the lowest since 1921. In that year $2,708,233 of business was placed, possibly the poorest showing on record. Incidentally, the best record in recent years was $11,722,353 in 1926.

However, the fallacy of placing too much importance upon early figures is obvious. Two or three unusually good months might change the complexion considerably. With the total for last year $7,996,000, a total exceeding that is far from impossible; nor is it altogether improbable.

# What Our Readers Are Thinking

## Is Pig Iron Price a Factor?

*To the Editor:*

The excellent article entitled "Whose Steel Industry Is It?" by O. H. Cheney in your June 14 issue is certainly timely and goes directly to the root of an unfortunate condition that should have been remedied ere this.

My attention has several times been called to the possible effect of the pig iron market on steel prices.

In the past, the entrance of steel furnaces into the merchant domain has been of a temporary nature. Adjustment of production among merchant stacks plus improvement within the steel industry itself has restored normalcy within a reasonable period.

But the present merchant pig iron market has been contrary to rule. Steel stacks have been exceptionally active in this exterior field and so far there is no evidence of abatement. The pig iron market is sorely depressed, and prices are anything but profitable.

Here enters psychology. In the foundry trade, the consumer has an erroneous complex as to the proper relation between price of castings and that of pig iron. Low pig prices hurt the foundry for it has to practically give the castings away. The buyer looks only at the price of pig iron and either does not know or care to know that it is a relatively minor factor in the price per pound of castings.

We are all human. Is it not reasonable to assume that in the mind of the consumer of steel there exists a relation between the price of pig iron and that of steel products. Cheap pig iron! Why should steel prices be high? Result—another influence working against fair and equitable prices in the steel industry.

If the steel industry would blow out a few furnaces and would be content with a reasonable proportion of the merchant trade, in my humble opinion, it would go a long way toward permitting a normal market, which would not only enable the merchant furnaces to live but help the steel industry as well, not to mention the foundry.

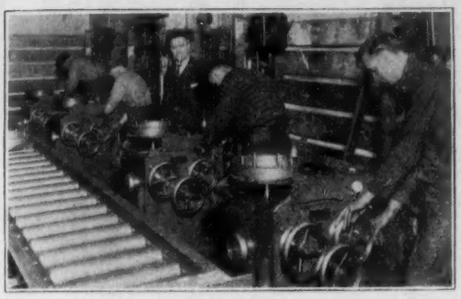
WILLIAM R. C. ALLEY.

*New York, June 26, 1928.*

IRON TRADE REVIEW

Volume 82, Number 26 — Published Every Thursday

*E. L. SHANER, Editor.* — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*



Next week the production of automobile starter gears will be described in interesting detail.

MASS production in many plants in this country devoted to the fabrication of steel demands as a prime requisite a uniform grade of material. For without this the production curve shrinks. Physical qualifications must be of the right character so that when the steel is presented to the forging hammer or forming dies no strains or other defects will develop. One of the safeguards against this condition is a resort to microscopic examinations. An interesting exposition of the possibilities of this protection will be found on page 1657.

# *The Readers' Page*

## CONTENTS

*For June 28, 1928*

### SPECIAL ARTICLES

Metallography Simplified for Practical Use in Shop—By E. Preuss..... 1657

What a Seller Must Do to Interest a Purchasing Agent—By W. B. Calkins 1660

Hauls Hot Metal Ten Miles to Steelworks..... 1662

European Market Shift Puts France and Belgium in Lead—By Vincent Delport..... 1664

Electric Carbon Steel Drawing Oven Uses Forced Air Convection — By F. E. Finlayson..... 1667

May Exports Advance Sharply..... 1670

Digest of New Machine Tools..... 1672

British Foundrymen Discuss Many Exchange Papers..... 1674

Editorials..... 1675

### BUSINESS TREND

Motor Car Output Makes May Record —By John W. Hill..... 1678

Automobile Output 1678
Detroit Employment..... 1679
Structural Awards. 1679
Cost of Living..... 1680
Bradstreet's Index 1680
Steel Castings..... 1681
Coke Output..... 1681

### MARKET REPORTS

Review of Markets..... 1682

Iron, Steel Prices. 1682, 1683, 1684, 1687, 1697

Pig Iron..... 1685
Coke..... 1686
Ferroalloys..... 1686
Iron and Steel Scrap 1687
Semifinished..... 1688
Bars..... 1689
Plates..... 1689
Pipe..... 1690
Nuts, Bolts, Rivets 1690
Sheets..... 1691
Tin Plate..... 1691
Structural Shapes. 1692
Reinforcing Bars.. 1693
Railroad Equipment 1694
Cold Finished Steel 1695
Wire and Nails..... 1695
Strip Steel..... 1695
Nonferrous Metals 1696
Coke By-Products. 1696
Warehouse Markets 1697
Pacific Coast Markets..... 1698
Foreign Markets.. 1703
Machinery Markets 1707
Crane Inquiry and Awards..... 1707

### GENERAL NEWS

Mirrors of Motordom..... 1705

Industrial Men in the Day's News— E. H. Broden..... 1701

Men of Industry... 1702
Obituary..... 1706
Here and There in Industry..... 1708
Construction and Enterprise..... 1709
Trade Publications 1712

IRON TRADE REVIEW is published by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulation: Associated Business Papers Inc.; and National Publishers Association. Branch offices: 1147 People's Gas Bldg., Chicago; 209 Edwards Bldg., Cincinnati; 2208-2206 No. 220 Broadway, New York; 2148-49 Oliver Bldg., Pittsburg; 24 California street, San Francisco; 1653 Pennsylvania avenue, Washington; and Boston. Foreign offices: Prince's Chambers, Birmingham, Eng.; Caxton House, Westminster S. W. 1, London; 9 Rue de Londres, Paris, France; Wilhelmstrasse 114, Berlin, S. W. 48, Germany; Cable address: *PENTON*, Cleveland; *IROTRAPEN*, London. Terms: Subscription in United States, Cuba and Mexico, $6 per year; in Canada, $8.50 per year and in Great Britain and other countries, £2:0:0 per year. *Entered at the Postoffice at Cleveland as Second Class Matter.* *Copyright 1928 by the Penton Publishing Co.*

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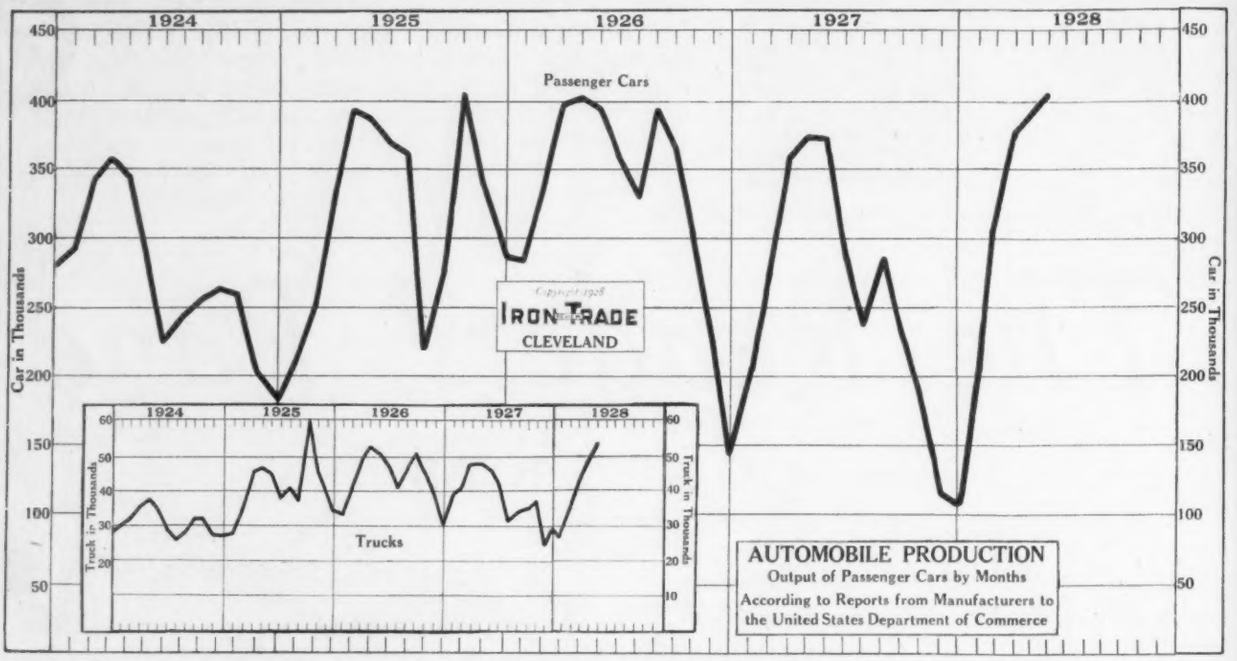
# The Business Trend




## Motor Car Output Makes May Record

By JOHN W. HILL, Financial Editor

TWO great basic industrial activities made new high records in May. One was the building industry, with a volume of awards overtopping any other month in history. The other was the automobile industry. During the month the output of motor cars reached the greatest figure for any May and the highest total, but one, of all time.

THE production of cars and trucks in May in the United States and Canada was 459,932. This compared with 434,429 cars and trucks in April and with 429,823 in May, 1927. The total exceeded all other months on record with the solitary exception of April, 1926, when 462,800 cars and trucks were turned out by manufacturers.

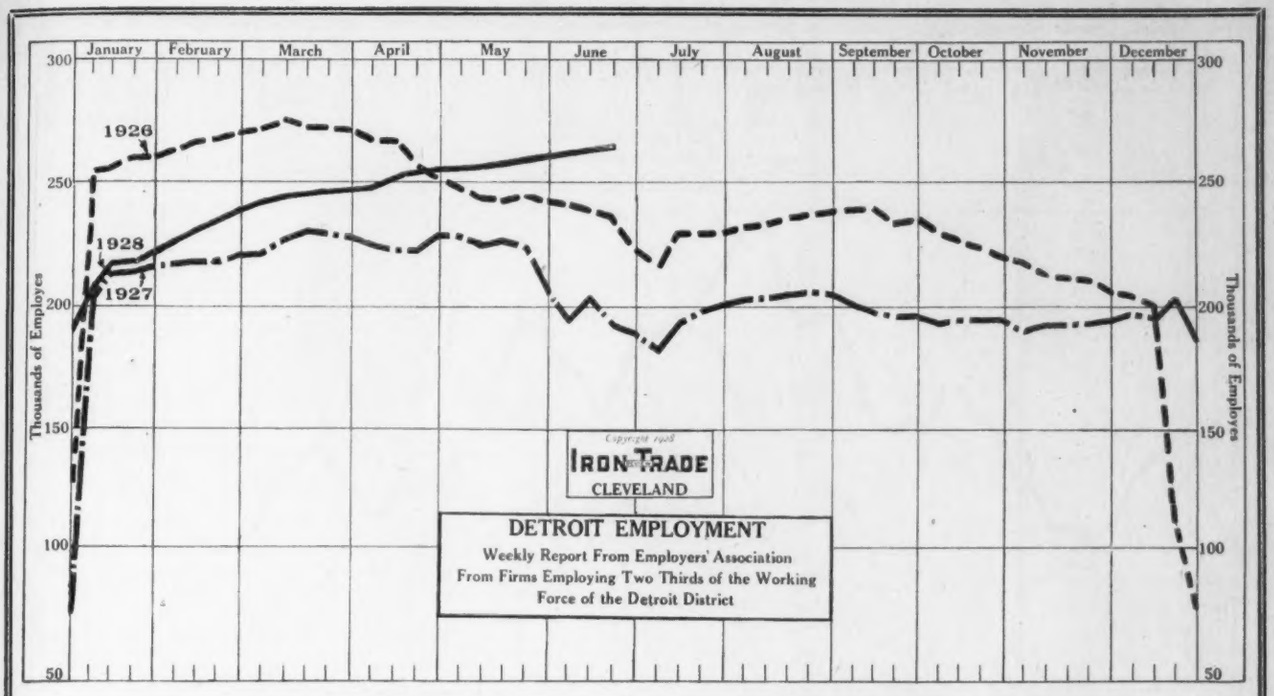
DURING the first five months a total of 1,893,692 cars and trucks has been produced compared with 1,854,607 during the corresponding period of 1927. The most significant factor of the showing of the automobile industry this year has been its upward movement in the face of the normal seasonal trend downward. Usually the peak of motor car output is reached in March or April with seasonal recession in productive activity in succeeding months.

THE important sustaining influence in the situation apparently is the Ford Motor Co. Just as the fading of Ford from the picture at this time one year ago, caused a sharp slump in aggregate motor car production, so his rising activities this year are helping to bolster the totals. However, Ford output has not increased as rapidly as was expected.

ACCORDING to announced schedules last spring Ford plans called for a daily output of 5000 cars by July 1. That date is approaching with production probably 2000 cars daily short of the 5000-car goal. Meanwhile, the output of a number of other important consumers has been holding at good levels, with the result that aggregate output of all makes reached the high figure of May.

WITH both building and the automobile industry being maintained at a good rate of activity, consumption of important iron and steel products has held up well. Nevertheless summer slackening is now at hand. It seems probable that the decline in consumption of steel will be measurably less than it was one year ago, although the price structure is soft and profits, in the main, show no signs of improvement.

# The Business Trend

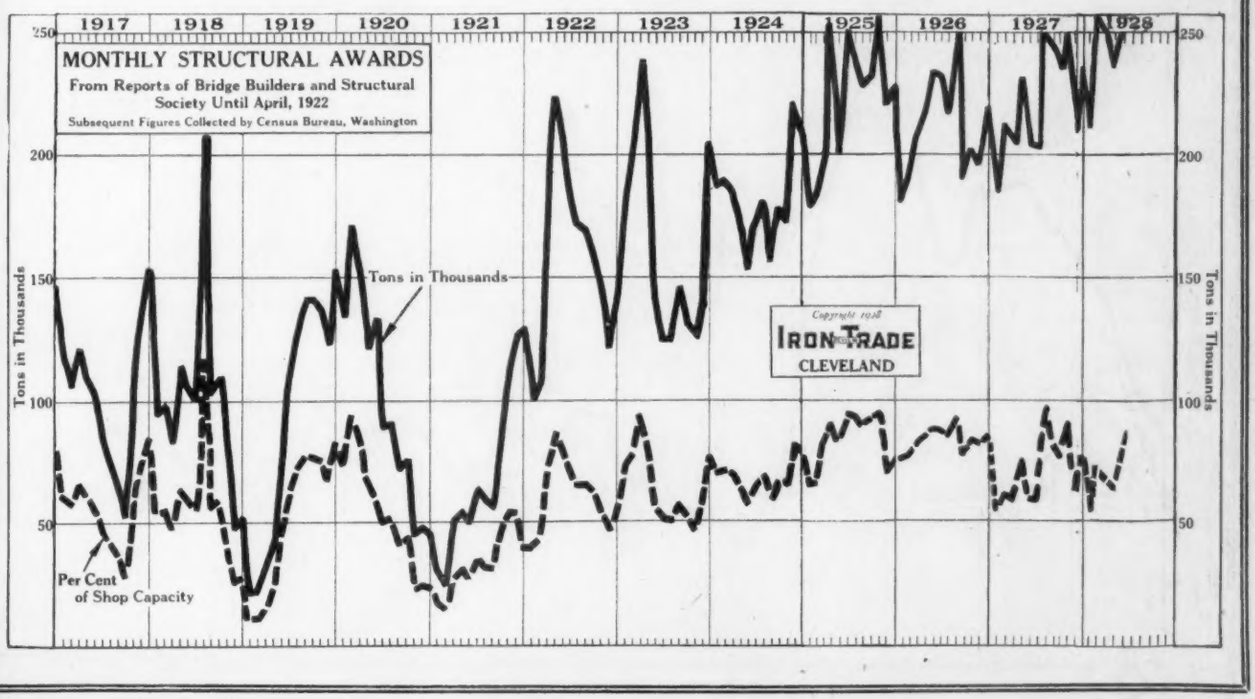



## Detroit Employment

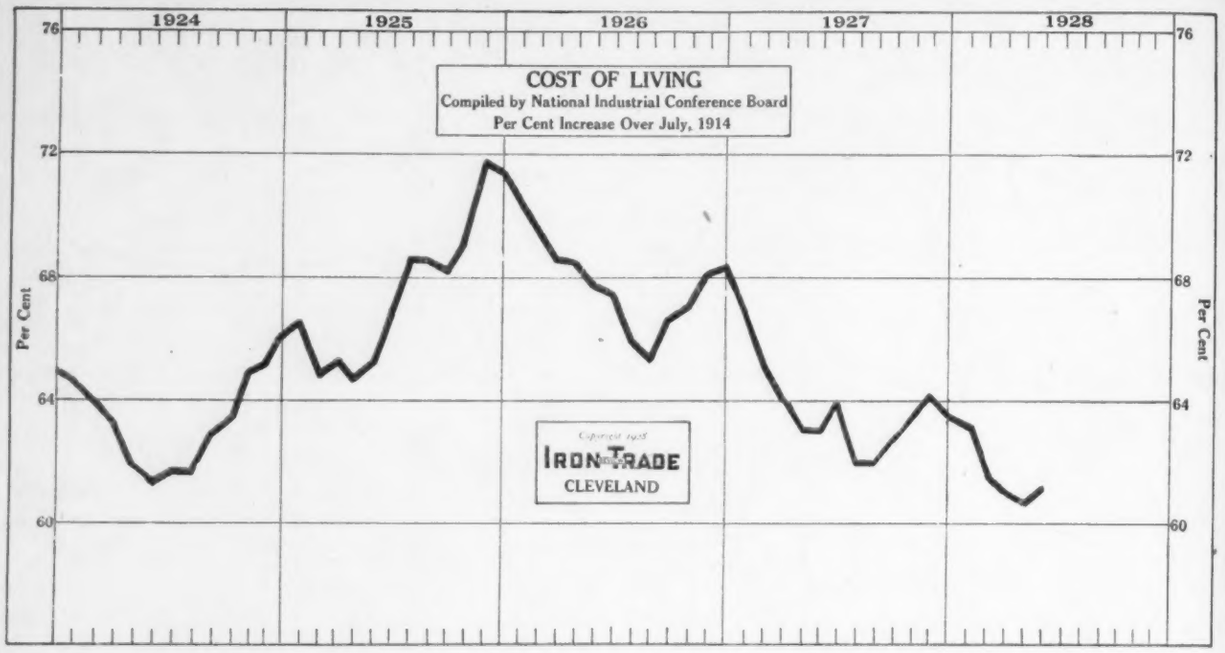
THE first decline in employment in the Detroit district this year came last week following a steady upward movement of almost six months. The recession, however, was of minor importance. Employment during the week ended June 19 totaled 263,197, a decline of 273 from the preceding week. Compared with the corresponding week of one year ago there was an increase of 71,894 and compared with two years ago the increase was 26,085. Normally the beginning of the downward trend begins in March.

## Structural Awards

MAY brought a sharp gain in the volume of orders for structural shapes. Computed tonnage placed during the month was 315,000 tons, according to reports of 196 companies with a monthly capacity of 294,435 tons, to the department of commerce. The May figures compared with 236,250 tons in April. Bookings for the month represented 84 per cent of capacity compared with 63 per cent one month ago. May orders were the largest for any month since July of the year before.



# The Business Trend

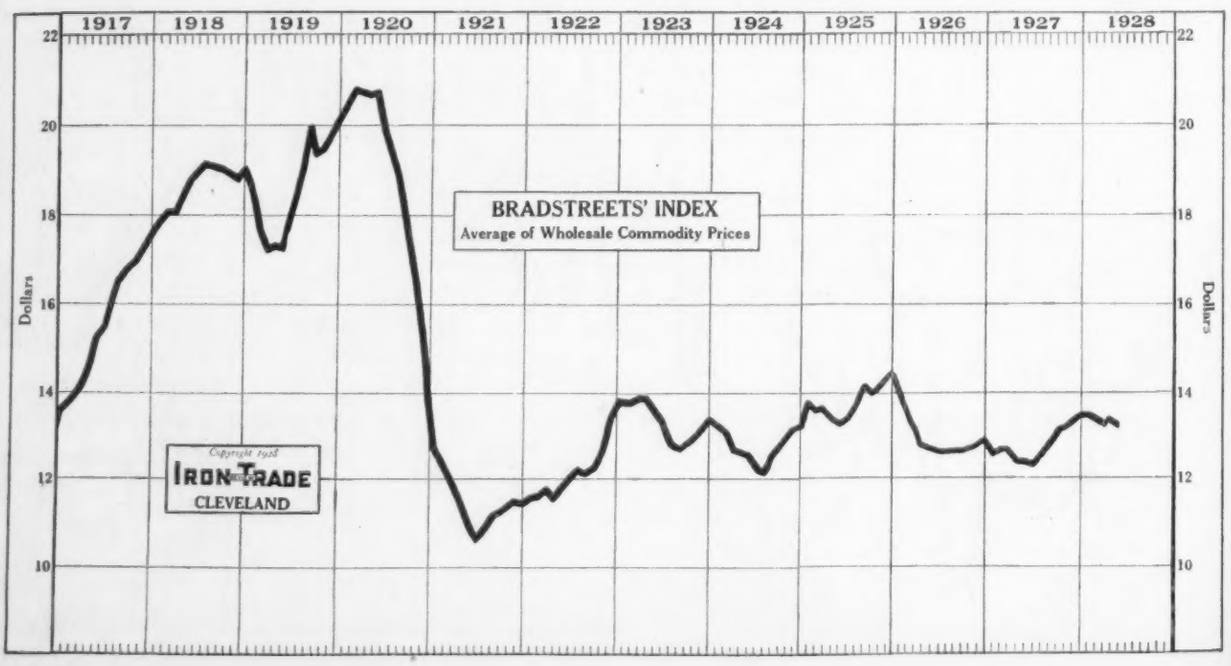



## Cost of Living

LIVING costs, as computed by the National Industrial Conference board, turned upward slightly in May. The index stood at 61.5 per cent over the 1914 level compared with 60.8 per cent over 1914 in April. Living costs, however, remain well below their level of one year ago. In May, 1927 the index stood at 63.7 per cent over 1914. Most marked declines have been for rents which now stand at 63 per cent over the prewar level compared with 70 per cent one year preceding.

## Bradstreet's Index

WHOLESALE commodity prices as measured by Bradstreet's index number as of June 1 show a slight recession. The index declined 1.8 per cent during the month of May and 2.8 per cent since the beginning of the current year. Compared with June one year ago, however, there is a gain of 6.2 per cent and compared with the low point of 1921 prices are now 24 per cent higher. The groups declining included hides and leather, bread stuffs, livestock and textiles. Rubber and building materials increased.



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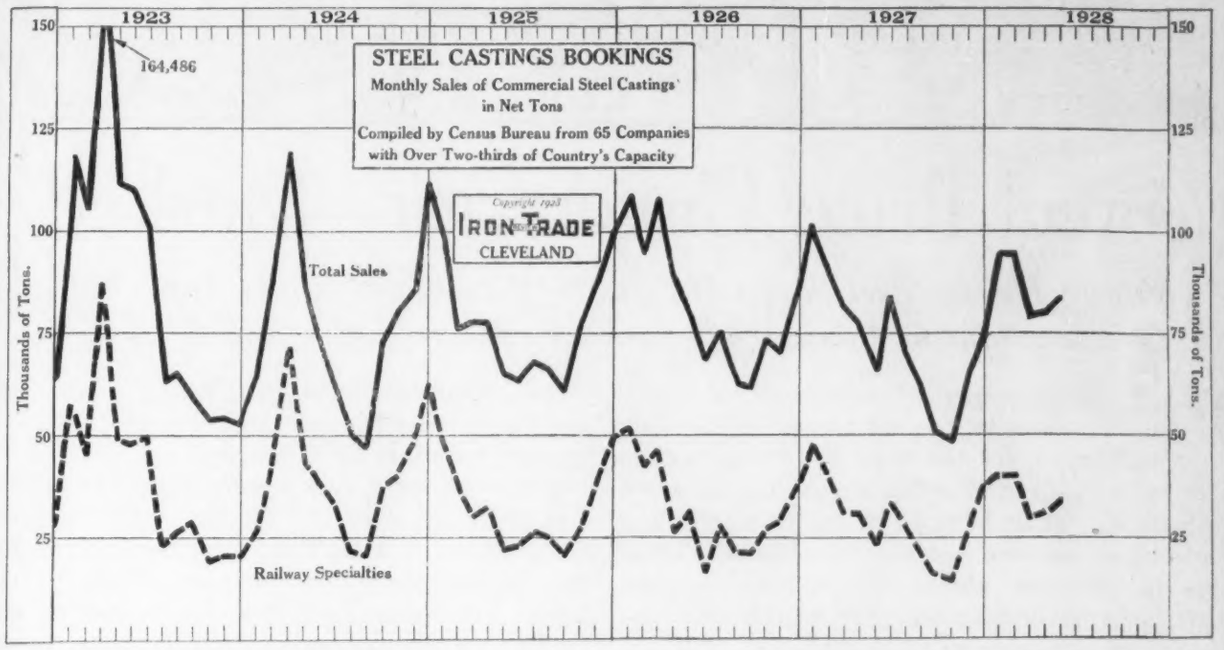
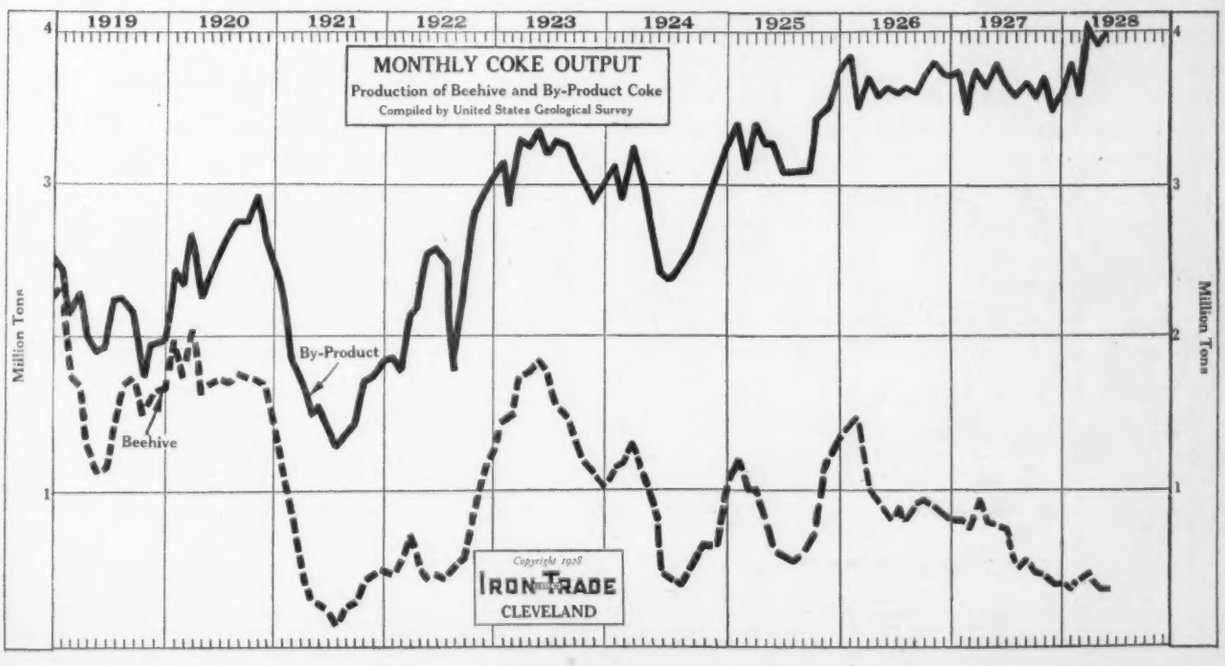



## Steel Castings

NEW orders for steel castings in May, as reported to the department of commerce by principal manufacturers, were 59 per cent of shop capacity as against 58 per cent in April and 50 per cent one year ago. The total orders were 84,824 tons compared with 83,737 tons in April and 72,744 tons in May, 1927. Railway specialties bookings totaled 34,984 tons compared with 32,810 tons in April and 28,946 tons in May one year ago. The five months orders were 433,595 tons against 446,291 tons one year ago.

## Coke Output

BY-PRODUCT coke production climbed to a new high record during May, while beehive output dropped for the second consecutive month. Production of by-product coke during the month was 4,083,759 tons, compared with 3,925,195 tons in April and 3,788,164 tons in May, 1927. The previous high mark was 4,064,940 tons in March, 1928. Output of beehive coke in May was 376,000 tons compared with 377,000 in April and 630,000 one year ago. Beehive coke output is running at the lowest level since 1921.



# Steel Price Uncertainty Marked

*Rise in Heavy Steel Seems Halted While Lighter Lines Ease Off—Liquidating Stocks Depress Iron—Sheet Orders Are Brisk*

PASSIVE resistance of consumers of heavy finished steel to the advanced 1.90c, Pittsburgh, price for the third quarter gives evidence of turning into active opposition. Coupled with the vacillation of most producers in initiating contracting and the sentimental effect of weakness in pig iron, scrap, coke and semifinished material, this development further shrouds the steel price structure in uncertainty.

**Some Selling Done at 1.85c**

In some districts contracts for heavy steel for next quarter have been closed at 1.85c, Pittsburgh, and there are suggestions of pressure upon this level, which has held through most of the expiring quarter. Preferred buyers still are able to do better than 1.85c. Chicago district producers are disturbed by continued forays into their territory by Pittsburgh mills, making maintenance of their $3 differential over Pittsburgh difficult.

The lighter steel lines also are sensitive to this condition. Attractive automobile business has elicited concessions of $2 per ton in cold rolled strip. Current prices for sheets and strip, usually representing reductions from earlier in the year, are being extended into the new quarter. Cold finished bars are off $2 per ton.

Within the next week a more definite determination of prices, especially on the heavy steel lines, is probable. Mill backlogs have been receding as users have specified out their second quarter material without substituting third quarter contracts, and the approach of the new quarter will stimulate action. The drifting of the past month has favored consumers more than producers.

**Automotive and Building Industries Brisk**

Meanwhile, actual consumption is in sharp contrast to the price situation. Another week of heavy building steel awards reinforces continued seasonally-strong demand from the automotive and farm implement industries. From the small manufacturing trade comes a steady flow of orders, neutralizing somewhat the disappointing requirements from the railroads and the oil country. Final figures will show the half year now closing to be a record one in steel production and, because consumers' stock are negligible,

## Comparative Prices of Iron, Steel and Coke

**Representative Market Figures for This Week, Last Month, Three Months and One Year Ago**

| | June 27, 1928 | May 1928 | Mar. 1928 | June 1927 |
|---|---|---|---|---|
| **PIG IRON** | | | | |
| Bessemer, del., Pittsburgh | $18.76 | 19.26 | 19.21 | 20.66 |
| Basic, valley | 15.75 | 16.20 | 17.00 | 17.90 |
| Basic, eastern, del. eastern Pa. | 19.10 | 19.10 | 19.50 | 20.75 |
| *No. 2 foundry, del., Pittsburgh | 18.26 | 18.86 | 19.01 | 19.96 |
| No. 2 foundry, Chicago | 18.00 | 18.20 | 18.50 | 20.00 |
| *Southern No. 2 Birmingham | 15.50 | 16.00 | 16.00 | 19.80 |
| *Southern Ohio, No. 2 Ironton | 19.00 | 19.00 | 19.00 | 22.00 |
| **No. 2X, Virginia furnace | 20.50 | 20.50 | 20.50 | 22.00 |
| **No. 2X, eastern, del. Phila. | 21.26 | 21.26 | 21.26 | 22.01 |
| Malleable valley | 17.00 | 17.25 | 17.25 | 18.25 |
| Malleable, Chicago | 18.00 | 18.20 | 18.50 | 20.00 |
| Lake Superior charcoal del. Chicago | 27.04 | 27.04 | 27.04 | 27.04 |
| Gray forge, val., del. Pittsburgh | 18.76 | 18.76 | 18.51 | 19.51 |
| Ferromanganese, del. Pittsburgh | 109.79 | 109.79 | 104.79 | 94.79 |
| *1.75 to 2.25 silicon. **2.25 to 2.75 silicon. | | | | |
| **COKE** | | | | |
| Connellsville, furnace, ovens | 2.60 | 2.55 | 2.60 | 2.85 |
| Connellsville, foundry ovens | 3.50 | 3.55 | 3.75 | 3.90 |
| **SEMIFINISHED MATERIAL** | | | | |
| Sheet bars, open-hearth, Youngstown | 33.00 | 33.10 | 33.75 | 33.75 |
| Sheet bars open-hearth, Pittsburgh | 33.00 | 34.00 | 33.70 | 33.50 |
| Billets, open-hearth, Pittsburgh | 32.00 | 33.00 | 33.00 | 33.00 |
| Wire rods, Pittsburgh | 44.00 | 44.00 | 44.00 | 42.00 |

| | June 27, 1928 | May 1928 | Mar. 1928 | June 1927 |
|---|---|---|---|---|
| **FINISHED MATERIAL** | | | | |
| Steel bars, Pittsburgh | 1.85 | 1.85 | 1.90 | 1.85 |
| Steel bars, Chicago | 2.00 | 2.00 | 2.00 | 2.00 |
| Steel bars, Philadelphia | 2.17 | 2.17 | 2.17 | 2.17 |
| Iron bars, Chicago | 2.00 | 2.00 | 2.00 | 2.00 |
| Shapes, Pittsburgh | 1.85 | 1.85 | 1.90 | 1.80 |
| Shapes, Philadelphia | 2.06 | 2.08 | 2.08 | 2.07 |
| Shapes, Chicago | 2.00 | 2.00 | 2.00 | 2.00 |
| Tank plates, Pittsburgh | 1.85 | 1.85 | 1.90 | 1.80 |
| Tank plates, Philadelphia | 2.10 | 2.05 | 2.10 | 2.17 |
| Tank plates, Chicago | 2.00 | 2.00 | 2.00 | 2.00 |
| Sheets, black, No. 24, Pittsburgh | 2.65 | 2.75 | 2.85 | 3.00 |
| Sheets, blue anl., No. 10, Pittsburgh | 2.00 | 2.00 | 2.10 | 2.25 |
| Sheets, gal., No. 24, Pittsburgh | 3.50 | 3.65 | 3.75 | 3.80 |
| Sheets, black, No. 24, Chicago | 2.80 | 2.85 | 3.05 | 3.15 |
| Sheets, blue anl., No. 10, Chicago | 2.15 | 2.20 | 2.25 | 2.40 |
| Sheets, galvanized, No. 24, Chicago | 3.65 | 3.80 | 3.90 | 4.00 |
| Plain wire, Pittsburgh | 2.50 | 2.50 | 2.50 | 2.40 |
| Wire nails, Pittsburgh | 2.60 | 2.60 | 2.65 | 2.50 |
| Tin plate, per base box, Pittsburgh | 5.25 | 5.25 | 5.25 | 5.45 |
| **SCRAP** | | | | |
| Heavy melting steel, Pittsburgh | 14.50 | 15.00 | 14.75 | 15.10 |
| Heavy melting steel, eastern Pa. | 13.00 | 13.75 | 13.75 | 14.25 |
| Heavy melting steel, Chicago | 12.50 | 12.95 | 12.75 | 12.00 |
| No. 1 wrought, eastern Pa. | 15.25 | 15.25 | 15.25 | 16.75 |
| No. 1 wrought, Chicago | 12.60 | 13.05 | 12.45 | 12.10 |
| Rails for rolling, Chicago | 14.75 | 14.35 | 14.45 | 14.60 |

# Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

### STEEL PLATES

| | |
|---|---|
| Pittsburgh | 1.85c to 1.90c |
| Philadelphia, del. | 2.10c |
| New York, del. | 2.175c |
| Boston, del. | 2.265c to 2.415c |
| Chicago | 2.00c |
| Cleveland | 2.04c to 2.09c |
| Buffalo | 2.00c |
| Coatesville, Sparrows Point | 1.95c to 2.00c |
| Birmingham | 2.00c |
| Pacific Coast, c.i.f. | 2.25c to 2.30c |

### STRUCTURAL SHAPES

| | |
|---|---|
| Pittsburgh | 1.85c to 1.90c |
| Philadelphia, del. | 2.06c to 2.12c |
| New York, del. | 2.14c to 2.19c |
| Boston, del. | 2.265c to 2.415c |
| Chicago | 2.00c |
| Cleveland, del. | 2.04c to 2.09c |
| Buffalo | 2.00c |
| Bethlehem | 1.95c to 2.00c |
| Birmingham | 2.00c |
| Pacific Coast, c.i.f. | 2.35c |

### BARS

#### SOFT STEEL

| | |
|---|---|
| Pittsburgh | 1.85c to 1.90c |
| Chicago | 2.00c |
| Birmingham | 2.00c |
| Buffalo | 2.00c |
| San Francisco | 2.35c |
| Cleveland, mill | 1.85c to 1.90c |
| Cleveland, delivered | 1.87½c and 2.09c |
| Philadelphia, delivered | 2.17c to 2.22c |
| New York, delivered | 2.19c to 2.24c |
| Boston, delivered | 2.265c to 2.415c |
| Pittsburgh, cold finishing | 2.00c to 2.05c |
| Pittsburgh, forging quality | 2.10c to 2.15c |

#### RAIL STEEL

| | |
|---|---|
| Chicago | 1.85c to 1.90c |
| Eastern mills | 1.75c |

#### IRON

| | |
|---|---|
| Chicago | 2.00c |
| New York, delivered | 2.14c to 2.24c |
| Philadelphia, delivered | 2.12c to 2.22c |
| Pittsburgh, refined | 2.75c to 4.25c |

#### REINFORCING

| | |
|---|---|
| Pittsburgh, billet | 1.85c to 1.90c |
| Chicago, billet | 2.30c to 3.00c |
| Chicago, rail steel | 2.00c to 2.60c |
| Chicago, rail steel, road and bridge work | 1.85c to 1.95c |
| Youngstown, billet | 1.90c to 2.00c |

### COLD FINISHED STEEL

| | |
|---|---|
| Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l. | 2.10c |
| Shafting (turned, polished) Pittsburgh | 2.10c |
| Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch) | 2.45c to 2.90c |
| Cold finished steel bars, Cleve. | 2.15c |

### TIN AND TERNE PLATE

Prices per 100-pound box, Pittsburgh

| | |
|---|---|
| *Tin plate, coke base | $5.25 |
| Gary, Ind., base 10 cents higher. | |
| Long ternes, primes, No. 24 | 4.10c |

*Price subject to quantity differentials.

### SHEETS

#### SHEET MILL BLACK

| | |
|---|---|
| No. 24, Pittsburgh, base | 2.60c to 2.70c |
| No. 24, Philadelphia, delivered | 2.92c to 3.02c |
| No. 24, Gary Indiana Harbor | 2.75c |
| No. 24, Chicago, delivered | 2.80c |
| No. 24, Birmingham, base | 3.00c |

#### TIN MILL BLACK

| | |
|---|---|
| No. 28, Pittsburgh, base | 2.85c to 2.90c |
| No. 28, Gary, base | 2.95c to 3.00c |

#### GALVANIZED

| | |
|---|---|
| No. 24, Pittsburgh, base | 3.45c to 3.50c |
| No. 24, Philadelphia, delivered | 3.77c to 3.82c |
| No. 24, Gary, Indiana Harbor | 3.60c |
| No. 24, Chicago, delivered | 3.65c |
| No. 24, Birmingham, base | 3.80c |

#### BLUE ANNEALED

| | |
|---|---|
| No. 10, Pittsburgh base* | 1.90c to 2.10c |
| No. 10, Philadelphia, delivered | 2.32c to 2.42c |
| No. 10, Gary, Indiana Harbor | 2.10c |
| No. 10, Chicago, delivered | 2.15c |
| No. 19, Birmingham, base | 2.20c to 2.25c |

*Plus 10 cents for 40 inches or wider.

#### AUTOMOBILE

| | |
|---|---|
| No. 20, Pittsburgh, base | 4.00c |

#### IRON

| | |
|---|---|
| No. 10, Pitts., blue ann., c.l. | 2.80c |
| No. 24, Pitts., box annealed, 1-pass cold rolled, carload | 3.75c |
| No. 24, Pitts., gal., c.l. | 4.85c |

*(Turn to the following page)*

it will also prove a record one in consumption.

Pig iron sales are light in all districts, considering the proximity of the new quarter, and the price tendency continues downward. Considerable of the weakness in pig iron is attributed to liquidation of stocks. The recent disturbance in the Mahoning valley basic market is thus partly explained, while No. 2 foundry iron has been reduced 25 cents in the Mahoning valley due to one furnace quietly liquidating at $16.50. A Pittsburgh district steelmaker has closed on 2500 tons of basic at $15.75, valley. Southern iron is off 50 cents, to $15.50, Birmingham.

### Raw Material Prices Are Easier

Beehive foundry coke users are contracting for the next six and twelve months at prevailing contract prices. Blast furnaces continue indifferent to their coke requirements. For extended deliveries beehive furnace cokemakers ask $3. By-product foundry coke has declined 50 cents per ton at Detroit. Many iron and steel scrap classifications have declined 25 to 50 cents per ton as the market has become glutted and many consumers are holding up shipments or cancelling.

Specifications for sheets have spurted sufficiently to enable Mahoning valley mills to put on 15 mills this week, making 113 out of 127 independent units active, an operating rate not surpassed this year. Orders at Pittsburgh are slightly in excess of current production but the mills prefer lengthening their backlogs slightly to putting on additional mills. Further stiff competition in galvanized has brought mill prices below 3.50c. Tonnage buyers have done 1.90c on black although some mills maintain a 2.00c minimum. On black sheets 2.60c is done and on full finished 4.00c.

### Bar Mill Backlogs Are Dwindling

Bar mill operations are higher than those of plate and shape mills in all districts. As users specify out their contract obligations, mill order books become depleted and deliveries are advanced. The recent Erie railroad freight car order will provide Chicago plate mills with 4000 tons. A water line for Denver requires 12,000 tons of plates. An award of 12,000 tons of steel for a New York hotel brings the week's structural orders up to 32,600 tons. Pencoyd, Pa., has been made an eastern basing point for shapes.

Steel corporation subsidiaries are operating at 76 per cent, identical with last week, but independent mills at 69.5 per cent are a point under a week ago. The entire industry is now operating at about 72.5 per cent. Chicago steelmaking operations have declined several points to 80 per cent, while Pittsburgh holds at 70 to 75 per cent and Buffalo at 86. Many mills will close July 3 for the rest of the week.

The Canadian National Railway will buy 160,000 tons of rails.

Weakness in pig iron and sheets has dropped the IRON TRADE REVIEW index of fourteen leading iron and steel products 15 cents this week, to $35.05, the lowest level since October, 1927.

## Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

| | |
|---|---|
| This week (June 27, 1928) | $35.05 |
| Last week (June 20, 1928) | 35.20 |
| One month ago (May, 1928) | 35.54 |
| Three months ago (March, 1928) | 35.81 |
| One year ago (June, 1927) | 36.59 |
| Ten years ago (June, 1918) | 56.62 |
| Fifteen years ago (June, 1913) | 26.78 |

# Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

SEE ALSO PRECEDING PAGE

## HOOPS, BANDS, STRIP

Hot strip, under 3-inch, Pitts. 2.10c to 2.20c
Hot strip, 3 to 6-inch, Pitts. 2.00c to 2.10c
Hot strip, 6 to 12-inch, Pitts. 1.90c to 2.00c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut lengths, 1.85c plate basis, or 1.95c blue annealed basis.
Hot strip, under 3-in., Chi..... 2.30c
Hot strip, 3 to 6-in., Chi..... 2.20c
Hot strip, 6 to 12-in., Chi..... 2.00c
Hot strip, 12 to 24 in., Chi.... 2.10c
blue annealed sheet basis.
Cold rolled strip, hard coils, 1½ inches and wider by 0.100-inch and heavier base, Pitts., Cleve., (over 3 tons) ..... 2.75c to 2.90c
Pitts., Cleve., (1-3 tons)..... 3.00c to 3.15c
Worcester, Mass. ..... 3.05c

## ALLOY STEEL

**Hot Rolled**

F.o.b. Pittsburgh or Cleveland

Alloy Quality Bar Base is 2.65c

| S.A.E. Series Number | Alloy differential | Net price 100 lb. bars |
|---|---|---|
| 2000 | 0.25 | $2.90 |
| 2100 | 0.55 | 3.20 |
| 2300 | 1.50 | 4.15 |
| 2500 | 2.25 | 4.90 |
| 3100 | 0.55 | 3.20 |
| 3200 | 1.35 | 4.00 |
| 3300 | 3.80 | 6.45 |
| 3400 | 3.20 | 5.85 |
| 4100 0.15-0.25 Mo. | 0.50 | 3.15 |
| 4100 0.25-0.40 Mo. | 0.70 | 3.35 |
| 4600 0.20-0.30 Mo. 1.25-1.75 Ni. | 1.05 | 3.70 |
| 5100 0.60-0.90 Cr. | 0.35 | 3.00 |
| 5100 0.80-1.10 Cr. | 0.45 | 3.10 |
| 5100 Chrome Spring | 0.20 | 2.85 |
| 6100 Bars | 1.20 | 3.85 |
| 6100 Spring Steel | 0.95 | 3.60 |
| Chrome Nickel Vanadium | 1.50 | 4.15 |
| Carbon Vanadium | 0.95 | 3.60 |
| 9250 | 0.25 | 2.90 |

## TUBING

**BOILER**

Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills
Steel 3¼ to 3¾-inch ..... 42½
Charcoal iron, 3¼ to 4½-inch ..... 9
Seamless hot rolled 3¼ to 3½-inch.... 46
Further discounts of six 5 per cents for 21,000 pounds or more on lap welded steel. On seamless hot rolled several more 5 per cents, and on charcoal two 10's and one 2½ on 12,000 pounds or more.

**COLD DRAWN SEAMLESS**

F.o.b. mill in desirable quantities
Random lengths over 5 feet.....55 per cent
Selected lengths, 1 to 18 ft.....53 per cent

## WIRE PRODUCTS

**To Jobbers in Carloads**

F.o.b. Cleveland and Pittsburgh base. Dealers 5 cents per 100 pounds extra

| | |
|---|---|
| Bright plain wire, No. 9 gage.. | 2.50c |
| Annealed fence wire ..... | 2.65c |
| Galvanized wire, No. 9 gage.... | 3.10c |
| Barbed wire, painted ..... | 3.10c |
| Barbed wire, galvanized ..... | 3.35c |
| | Per 100 lbs. |
| Wire nails,..... | $2.55 to 2.65 |
| Galvanized nails ..... | 4.55 to 4.65 |
| Polished staples ..... | 3.00 to 3.10 |
| Galvanized staples ..... | 3.25 to 3.35 |
| Coated nails, 100 lb. kegs, Sept. 1, 1926 extras apply.... | 2.55 to 2.65 |
| Woven wire fencing (retailers) 12½ gage, 26-in. high, 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts..... | $20.03 |

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there: Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

## CAST IRON WATER PIPE

**Prices per net ton**

**Class B Pipe**

Six inch and over, Birming'm $31.00 to 33.00
Four-inch, Birmingham ..... 35.00 to 37.00
Four-inch, Chicago ..... 43.20 to 45.20
Six-inch to 24-inch, Chicago..... 39.20 to 41.20
Four-inch, New York ..... 41.50 to 42.60
Six-inch and over, New York 38.25 to 38.60
Standard fittings, Bir. base..... $100.00
Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.
Class A pipe is $4 higher than Class B.

## IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

| | Black | Galv. |
|---|---|---|
| 1 to 3-inch butt steel* ..... | 62 | 50½ |
| 1 to 1½-inch butt iron ..... | 30 | 13 |

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent.

## CHAIN, PILING, CUT NAILS

Cut nails, c.l., f.o.b. mills ..... 2.80c
Chain, 1-in., proof coil, Pitts..... 6.00c
Sheet piling base, Pittsburgh.. 2.25c to 2.35c

## RAILS, TRACK MATERIAL

Standard bessemer rails, mill $43.00
Standard open-h'th rails, mill $43.00
Relaying rails, St. Louis.....$24.00 to 31.00
Relay, rails, Pitts. 60 to 90 lb..$27.00 to 30.00
Light rails, 25 to 45, mills..... $36.00
Angle bars, Chicago base..... 2.75c
Spikes, railroad, Pittsburgh.... 2.80c
Spikes, small railroad, ⅞-inch and smaller, Pitts..... 2.80c
Spikes, boat and barge, Pitts. 3.00c
Spikes, railroad, Chicago ..... 2.80c
Track bolts, Pitts., stand..... 70 off list
Track bolts, Chicago ..... 3.80c
Tie plates, Chicago, Pitts..... $43.00

## BOLTS AND NUTS

F.o.b. basing points, Pittsburgh, Cleveland Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927. Small lots are 55 to 60 per cent off.

**CARRIAGE BOLTS**

All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅝x6 and smaller take 10 per cent lower list.
Eagle list ..... 60 to 70 off

**MACHINE BOLTS**

All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅝x6 and smaller take 10 per cent lower list.
Lag screws ..... 60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads 60 to 70 off
Tap bolts ..... 60 to 70 off
Blank bolts ..... 60 to 70 off
Stud bolts without nuts..... 60 to 70 off
Stove bolts, 75, 20, 10, and 5 off in pkgs. 75, 20, 10 and 5 with 2½ off in bulk.
Tire bolts .....60-5 off

**NUTS**

Semifinished ..... 60 to 70 off

**HEXAGON CAP SCREWS**

Milled .....80-10-10 off
Upset 1 in. diam. and smaller.....80-10-10 off

**SQUARE HEAD SET SCREWS**

Milled .....80-10 off
Upset 1in. diam and smaller.....80-10-10 off

## RIVETS

Struct., c.l., Pitts.-Cleve..... 2.90c
Structural, c.l., Chicago..... 3.00c
**½-inch and smaller, Pitts.....70 and 10 off
Chi., Cleve. .....70 to 70 and 10 off
**Some makers quoting 70 off with freight allowed on 300 pounds or more.

## WASHERS

Wrought, c.l., Pitts. dist.....$6.50 to 6.75 off
Wrought, c.l., Chicago dist.....$6.70 to 6.90 off
Lock: To dealers .....85-5 off
Lock: To consumers .....85 off

# Raw Materials and Semifinished Products

## SEMIFINISHED MATERIAL

**Prices per gross ton**

**BILLETS AND BLOOMS**

**4 x 4-inch base**

Pittsburgh, open-hearth.....$32.00 to 33.00
Pittsburgh, bessemer ..... 32.00 to 33.00
Youngstown ..... 32.00
Cleveland ..... 33.00
Philadelphia ..... 38.30
Chicago ..... 34.00
Forging, Chicago ..... 38.00 to 43.00
Forging, Pittsburgh ..... 38.00
Forging, Philadelphia ..... 43.30

**SHEET BARS**

Pittsburgh ..... 32.50 to 33.00
Youngstown ..... 33.00
Cleveland ..... 32.50 to 33.00
Chicago ..... 35.00

**SLABS**

Pitts., Young., and Cleve.....$32.00 to 33.00

**WIRE RODS**

Pittsburgh, Cleveland ..... $44.00
Chicago ..... 45.00

**SKELP**

All grades, Pittsburgh ..... 1.85c to 1.90c

## IRON ORE

**LAKE SUPERIOR ORE**

**Per Gross Ton, Lower Lake Ports**

Old range bessemer, 51½%.... $4.55
Mesabi bessemer, 51½% ..... 4.40
Old range bessemer 51½%..... 4.40
Mesabi nonbessemer, 51½%..... 4.25

**EASTERN LOCAL ORES**

**Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces**

Foundry and basic, 58-63%..... 8.00 to 8.50
Copper free low phosphorus 58 to 65 per cent ..... nominal

**FOREIGN IRON ORE**

**Cents per unit, alongside docks, Atlantic ports**

Foreign manganiferous ore, 45-55% iron, 6-8% manganese 11.00
North African low phosphorus 10.00 to 11.00
Swedish foundry or basic, 65%....none offered
Spanish and North African basic, 50 to 60 per cent..... 8.50 to 10.00
Newfoundland foundry, 55%.... 8.50 to 9.00

## MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian .....36 to 38 cents
Indian .....36 to 38 cents
Caucasian (53-55 per cent) ....38 to 40 cents

## FLUORSPAR

**85 and 5 per cent grade**

Washed gravel, Kentucky and Illinois mines, per net ton....$15.00 to 16.00
Washed gravel, imported duty paid, east. tidewater, net ton 15.50 to 16.00

## REFRACTORIES

**FIRE CLAY BRICK**

**Per 1000 f.o.b. works**

**First Quality**

Pennsylvania .....$43.00 to 46.00
Ohio ..... 43.00 to 46.00
Illinois ..... 43.00 to 46.00
Kentucky ..... 43.00 to 46.00
Missouri ..... 43.00 to 46.00
Maryland ..... 43.00 to 46.00
Georgia and Alabama ..... 40.00 to 45.00

**Second Quality**

Pennsylvania ..... 35.00 to 38.00
Ohio ..... 35.00 to 38.00
Illinois ..... 35.00 to 38.00
Kentucky ..... 35.00 to 38.00
Missouri ..... 35.00 to 38.00
Maryland ..... 35.00 to 38.00
Georgia and Alabama ..... 30.00 to 35.00

**SILICA BRICK**

Pennsylvania ..... 43.00
Joliet, Ill., East Chicago, Ind.... 52.00
Birmingham ..... 51.00

**MAGNESITE BRICK**

**Per Net Ton**

9 x 4½ x 2½ ..... 65.00

**MAGNESITE**

**Net Ton Chester, Pa., and Baltimore base**

Dead-burned grain magnesite.... 40.00

**CHROME BRICK**

**Net Ton Chester, Pa., and Baltimore base.**

9 x 4½ x 2½ ..... 45.00

# Pig Iron

**Sales Only Fair, with But Small Part of Third Quarter Needs Covered—Price Tendency Continues Downward**

LIQUIDATION of pig iron stocks by producers near the Mahoning valley continues to weigh heavily on the market. The recent debacle in basic is attributed to this cause, and now a tonnage of No. 2 foundry is being distributed at $16.50, valley, a reduction of 25 cents. Southern iron is off 50 cents, to $15.50,Birmingham. Few large inquiries are current at Chicago, considering the nearness of the third quarter. Barge iron for winter requirements of eastern consumers of Buffalo iron is not yet being laid down. Sales at Cleveland the past week exceeded 30,000 tons. Inquiry is light at Buffalo, where 12 out of 21 stacks are in blast. Contracting is not brisk at Detroit and the melt there is declining gently. Foundry iron is none too firm in eastern Pennsylvania.

**PITTSBURGH, June 26.**—An inactive pig iron market is enlivened by occasional transactions such as the purchase of 2500 tons of basic iron from a valley steelworks at $15.75, valley, by the Colonial Steel Co. at Monaca, Pa., which takes a $113 freight rate. It is understood a local steel interest quoted $17, delivered, on a $1 freight rate. The Follansbee Bros. Co. has not yet closed on 10,000 tons of basic. One or two valley merchant producers adhere to $16, valley, and a Pennsylvania steelworks on the same freight rate to Pittsburgh as from the valley now quotes $16.50, Johnstown. The latter quotes $17 to $17.25 on bessemer. Valley makers are naming $17, valley, taking small quantities. It is understood the A. M. Byers Co. is starting negotiations for its bessemer requirements but will not buy more gray forge for possibly 60 days. On No. 2 foundry $16.75, valley, now is the top price, with one furnace quietly liquidating at $16.50 now. The Westinghouse Electric & Mfg. Co. is inquiring for its last half requirements for No. 2, No. 2X and No. 3 foundry for Trafford City, Pa. No tonnage is named but its normal requirements are about 2500 tons of malleable. Interest in malleable is lacking; $17 to $17.25 is quoted.

**Boston, June 26.**—Not more than 2000 tons figured in the pig iron market for this district during the past week. The Mystic Iron Works sold some 1700 tons of this total, with the rest practically all from Buffalo furnaces. Some 300 tons of Mystic's tonnage was for immediate delivery, indicating stocks are not high in most foundries. There also comes a request for carlots to be delivered right away. As to prices there are many conflicting reports, but most interests feel sure that a generally firm situation now exists. For the general market, that is 300 to 600 ton orders, there is no shading of prices, but were some sizable tonnages to appear, it is freely believed that competition would bring about a lower price from practically all sources.

**New York, June 26.**—Buying of pig iron the past week is estimated at not in excess of 600 tons. The principal inquiry involves requirements of Worthington Pump & Machinery Corp. Delivered prices generally are equivalent to $16 to $16.50, base, Buffalo, although shipment of Buffalo iron by barge to New York harbor for shipment by rail to inland destinations results in transportation charges which net the Buffalo makers participating in the business somewhat higher figures at their furnaces. It now is considered likely that considerable Buffalo iron will be laid in stock along the New Jersey water front to supply this territory during the winter months. Despite the fact the barge movement of iron from Buffalo to New York harbor has been heavy in recent weeks, all has gone directly to consuming destinations. Sales of foreign iron continue restricted to Dutch and Indian foundry iron, the former bringing around $20.50 to $21, duty paid tidewater, and the latter around $20.50, base, duty paid tidewater.

## Pig Iron Prices

**Per Gross Ton**

| | |
|---|---|
| Bessemer, valley furnace | $17.00 |
| Bessemer, del., Pittsburgh | 18.76 |
| Basic, valley furnace | 15.75 to 16.00 |
| Basic, del., Pittsburgh | 17.51 to 17.76 |
| Basic, Buffalo furnace | 17.00 |
| Basic, del., eastern Pa. | 19.00 to 19.25 |
| Malleable, valley furnace | 17.00 |
| Malleable, del. Pittsburgh | 18.76 |
| Malleable, del. Cleveland | 18.00 |
| Malleable, Chicago furnace | 18.00 |
| Malleable, Buffalo furnace | 17.50 |
| Malleable, del. eastern Pa | 20.75 to 21.25 |
| No. 1 foundry, Chicago furnace | 18.50 |
| No. 1X, eastern del., Phila. | 21.76 |
| No. 1X, Buffalo furnace | 18.50 |
| No. 2 foundry, valley furnace | 16.50 to 16.75 |
| No. 2 foundry, del., Pittsburgh | 18.26 to 18.51 |
| No. 2 plain, Everett, Mass., fur. | 19.00 to 21.00 |
| No. 2 plain, Buffalo furnace | 17.00 |
| No. 2 foundry, Chicago, furnace | 18.00 |
| No. 2 foundry, Granite City | 19.00 to 19.50 |
| No. 2 foundry, Ironton furnace | 19.00 |
| No. 2 foundry, del. Cleveland | 18.00 |
| No. 2 plain, del. Phila | 20.76 |
| No. 2 plain Virginia furnace | 20.00 to 20.50 |
| No. 2 plain, N. J., tidewater | 19.28 to 21.76 |
| No. 2 foundry, east N. Y. fur. | 18.00 |
| No. 2 Alabama, Birmingham | 15.50 |
| No. 2 Alabama, del. Cincinnati | 19.19 |
| No. 2 Tenn., Birmingham base | 15.50 |
| No. 2 Tenn., del., Cincinnati | 19.10 |
| No. 2 Alabama, del. Chicago | 21.76 |
| No. 2, Ala., del. Chicago, river-rail | 19.68 |
| No. 2 Alabama, del. Cleveland | 21.76 |
| No. 2 Alabama, del. St. Louis | 19.92 |
| No. 2X, east, N. J., tidewater | 19.78 to 22.26 |
| No. 2X, eastern, del. Phila. | 21.26 |
| No. 2X, foundry, Buffalo furnace | 17.50 |
| No. 2X, eastern, del. Boston | 23.15 to 23.65 |
| No. 2X, Virginia furnace | 20.50 |
| Gray forge, val., del., Pittsburgh | 18.76 |
| Low phos., standard, valley | 26.50 |
| Low phos., standard, Phila. | 24.76 to 27.29 |
| Low phos. copper bearing fur. | 23.00 to 23.50 |
| Charcoal, Birmingham | 28.00 |
| Charcoal, Superior, del., Chicago | 27.04 |

**CANADIAN PRICES**

| | |
|---|---|
| No. 2 foundry, del. Toronto | 23.10 to 23.60 |
| No. 2 foundry, del. Montreal | 24.50 to 25.00 |
| Malleable, del. Toronto | 23.10 to 23.60 |
| Malleable, del. Montreal | 24.50 to 25.00 |
| Basic, del. Montreal | 23.50 to 24.00 |

Silvery iron, Jackson county (Ohio) furnace in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50; 16—$43.

**Buffalo, June 26.**—New inquiry for pig iron is measured in hundreds rather than thousands of tons. With the great bulk of third quarter tonnage unplaced, consumers show no disposition to contract. Buffalo furnaces report a $17 base on district business. Production is unchanged, 12 furnaces being in operation and 9 idle.

**Cleveland, June 26.**—Sales of pig iron by furnaces with Cleveland headquarters handily exceeded 30,000 tons in the past week, a marked increase over recent weeks. Inquiry also is brisk, aggregating at least 12,000 tons. Despite rather steady selling, considerable third quarter needs for pig iron remain unsatisfied. The local situation is less brisk, but in Indiana and Southern Ohio activity is more marked. On local sales the delivered price for foundry and malleable iron ranges from $18 to $18.50 but lake furnaces go to $17 to $17.50, furnace, for business in highly competitive territory.

**Detroit, June 26.**—Third quarter contracting for pig iron has not been brisk, largely due to the generally easy price situation and the admitted ability of melters to obtain supplies immediately. Automotive foundries have tapered gently from the May and early June rate. Stove and radiator foundries are going good while certain malleable shops are restricted by a shortage of labor. Farm implement foundries are melting more iron than 30 days ago. Foundry and malleable iron are usually quoted $18, delivered Detroit, but the lake furnaces go to a range of $17 to $17.50, furnace, on shipments to highly competitive consuming points outside of Detroit.

**Cincinnati, June 26.**—With southern iron now $15.50, Birmingham, and $19.19, delivered Cincinnati, northern pig iron sellers have stiffer competition. An Evansville, Ind., stovemaker has inquired for 500 tons each of northern and southern iron, having re-

(*Concluded on Page* 1699)

# Coke

**Some Foundry Users Are Renewing Contracts but Furnace Grade Requirements Wait**

BEEHIVE coke situation is little changed, with some buyers of the foundry grade extending present arrangements at current prices. Blast furnaces may look to their last half needs shortly. The foundry grade has been reduced 50 cents at Detroit by-product ovens. The New York district reports demand for the foundry grade a trifle better.

**Pittsburgh, June 26.**—Confidence in the future by consumers of beehive foundry coke is backed up by their closing 6 to 12-month contracts from July at present sources and at the same figures they had been paying. Outside of two or three premium brands selling at $4.85, other grades are selling from $4.50 down to $4. A rather active spot market is noted with sales every day at $3.50 to $4.

Negotiations for some beehive furnace coke are under way by non-metallurgical users. Blast furnaces are indifferent, although it is probable two or three renewals with present sources will be made within a week or two. Coke makers are asking $3 for extended deliveries. Spot sales are dwindling. Although $2.60 to $2.65 still is obtainable it is becoming more difficult to locate. Most spot sales are bringing $2.75. Heating coke buyers are not tempted by prices under $2.50.

Production of coke in the Connellsville region for the week ended June 16 was 44,430 tons, compared with 40,480 tons the preceding week, according to the *Connellsville Courier*.

**Boston, June 26.**—The coke situation is little changed. Foundries appear well stocked, with the melt going on at a moderate pace. Cool weather has continued the demand for domestic grades which keeps a fair tonnage moving.

**New York, June 26.**—Specifications against first half foundry coke contracts are somewhat larger. This improvement is only comparative, however, as the movement in previous weeks had been rather small. By-product foundry coke continues $8.30, ovens, in northern New Jersey, equivalent to $9 to $9.40, delivered Newark. Premium brands of beehive foundry coke continue $4.85, Latrobe, Pa., equivalent to $8.56, delivered Newark. Spot beehive foundry coke of ordinary quality continues $3.75 to $4.25, Connellsville, equivalent to $7.66 to $8.16, delivered Newark.

**Detroit, June 26.**—By-product foundry coke has been reduced 50.00c per ton to $9, delivered Detroit. On sales into competitive territory outside of Detroit the most usual price is $8.50, Detroit ovens.

**Cincinnati, June 26.**— June coke prices, which were reduced, are being named for July. Specifications for foundry coke are lower. Many foundries will be closed from July 3 until July 9.

**St. Louis, June 26.**—Demand for foundry coke continues quiet, with shipments for the month averaging below those of May and in a more marked degree below those of last June. Sellers ascribe the present lull to the usual seasonal slowing down in foundry operations and to a disposition on the part of melters to use up reserve stocks. Output at by-product ovens in this district has been reduced somewhat. The blowing out of one of its blast furnaces by the St. Louis Gas & Coke Corp. has substantially curtailed its consumption of furnace coke, and it reports larger stocks.

**Birmingham, Ala., June 26.**—By-product coke works operation is a little improved, as shipment of coke takes on a little impetus. Foundry coke is $5. A few contracts have been booked for delivery during the next three to twelve months.

## Coke Prices

**Beehive Ovens**

**Prices per Net Ton**

| | |
|---|---|
| Connellsville furnace | $2.60 to 3.00 |
| Connellsville foundry | 3.50 to 4.50 |
| New River foundry | 6.50 to 7.50 |
| New River furnace | 6.00 |
| Wise county foundry | 5.00 to 5.25 |
| Wise county furnace | 4.00 to 4.75 |

**By-Product Foundry**

| | |
|---|---|
| Newark, N. J., del. | 9.00 to 9.40 |
| Chicago, ovens | 8.00 |
| New England, del. | 11.00 |
| St. Louis | 9.00 |
| Birmingham | 5.00 |
| Indianapolis, del. | 8.75 |
| Ashland, Ky. | 7.00 |
| Portsmouth, O. | 7.00 |
| Detroit, ovens | 8.50 |
| Buffalo, ovens | 9.00 |

# Ferroalloys

**Last Half Contracting Continues—Consumption Declines**

**Pittsburgh, June 26.**—More contracting for last half ferromanganese has engaged ferroalloy buyers and sellers. Practically 75 per cent of customers is under cover, a few larger ones deferring action. Specifications are coming in regularly on unfilled portions of first-half or second-quarter contracts. In some cases, however, they have tapered off in harmony with reduced operating schedules, despite the fact these orders are being filled at $100, seaboard, whereas last-half business is booked at $105, seaboard base. The $5 differential in some cases is not considered enough to cover the cost of putting down and taking up heavy stocks. Last-half spiegeleisen business booked at $30 to $32 takes care of practically all customers' requirements. A few stragglers who purchase single carloads in the spot market are being asked to pay the higher figures by $1 inaugurated recently by the leading domestic maker, namely $33 on 19 to 21 per cent.

**Chicago, June 26.**—More progress is being made in closing ferromanganese contracts for last half. Practically all smaller users are protected and but few of the larger users have failed to cover. Specifications in both ferromanganese and 50 per cent ferrosilicon are easing somewhat because of the general decline in steelworks and foundry operations, and the recent high shipments have fallen off. It is reported that the recent sales of spiegeleisen at $32 for carload lots represented resale transactions. The third quarter price is being quoted generally at $33, eastern furnace, for 19 to 21 per cent.

Special ferroalloys are moving in a little lighter tonnage, as is usual at this time of year. Prices all through the list are steady. Tungsten ore, wolframite, is mostly about $11 as an asking price but it is said some can be had a little less.

## Bar Iron Wages Rise

The bimonthly bar iron wage settlement of the Amalgamated association shows that wages for July and August will be based upon a 1.90c card, compared with a 1.85c card which has governed all year, as indicated by the following comparisons:

| | 1928 | 1927 | 1926 | 1925 | 1924 |
|---|---|---|---|---|---|
| Jan.-Feb. | 1.85c | 1.95c | 2.00c | 2.00c | 2.35c |
| Mar.-Apr. | 1.85c | 1.95c | 2.05c | 2.35c | 2.35c |
| May-June | 1.90c | 1.95c | 2.00c | 2.05c | 2.25c |
| July-Aug. | ..... | 1.95c | 2.00c | 1.95c | 2.15c |
| Sept.-Oct. | ..... | 1.90c | 2.00c | 1.95c | 2.10c |
| Nov.-Dec. | ..... | 1.85c | 2.00c | 1.95c | 2.05c |
| Yearly av. | ..... | 1.90c | 2.00c | 1.99c | 2.21c |

## Ferroalloy Prices

| | |
|---|---|
| Ferromanganese, 78 to 82 per cent tidewater, duty paid | $105.00 |
| Ferromanganese, del. Pittsburgh | 109.79 |
| Spiegeleisen, 19 to 21 per cent domestic furnace | 33.00 |
| *Ferrosilicon, 50 per cent, freight allowed, carloads | 83.50 |
| *Do., less carload | 88.50 |
| Do., 75 per cent | 130.00 to 150.00 |
| Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del. | 11.00 |
| Do., for spot delivery | 11.50 |
| Ferrotungsten, stand., lb. cont. | 96.00 to 98.00 |
| Ferrovanadium, 30-40 per cent, per lb., contained, on analysis | 3.15 to 3.65 |
| Ferro-carbon-titanium carload, producers plant, net ton | 200.00 |
| Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent) | 91.00 |
| Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent) | 122.50 |

*These prices contract; spot $5 higher.

# Scrap

**Reduction of 25 to 50 Cents Per Ton General—Consumer Buying Lacks in All Markets**

WEAKNESS in prices of iron and steel scrap are marked in all consuming centers and declines of 25 to 50 cents are general. Melters are using their reserves and will not buy further. Production continues heavy. Some contract holders are regulating deliveries to match requirements.

**Chicago, June 26.**—Consumer prices for iron and steel scrap are showing reaction downward from the 25 to 50-cent decline of a week ago in the leading grades, but prices are marking time in a generally weakened market. Seasonal influences are being felt more sharply in steelworks and foundry operations, and in a few cases shipments of scrap to consumers have fallen off. Heavy melting steel continues at $12.50 to $13, unchanged from a week ago, while dealer trading is at $12.50 to $12.75. Following the recent buying activity, dealer and broker coverage is moderately active. Rolled steel car wheels are 25 cents lower with the sale of round tonnages at $16. Forged steel scrap is 50 cents lower.

**Boston, June 26.**—Generally there is an easier price trend for several lines of scrap. There was a better demand for textile, with $13.50 to $14 as the going price. Buying for export fell off, as a result of some delay in last week's boat getting away. Machine shop turnings, cast iron borings for mill use, skeleton, mixed borings and turnings, forge scrap and shafting developed an easier trend.

**New York, June 26.**—A 25 to 50-cent reduction in four or five grades

# Iron and Steel Scrap Prices

**Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown**

## Steel Works Scrap

**HEAVY MELTING STEEL**

| | |
|---|---|
| Birmingham | $10.25 to 10.50 |
| Boston, dealers | 8.50 to 9.00 |
| Buffalo, No. 1 | 14.00 to 14.25 |
| Buffalo, No. 2 | 12.00 to 12.50 |
| Chicago | 12.50 to 13.00 |
| Cincinnati, deal. | 11.00 to 11.50 |
| Cleveland, No. 1 | 13.00 to 13.50 |
| Cleveland, No. 2 | 12.25 to 12.75 |
| Detroit, No. 1 | 10.50 to 11.00 |
| Eastern Pa. | 13.50 to 14.00 |
| Eastern Pa., No. 2 | 10.50 to 11.00 |
| Bethlehem delivery | 13.00 |
| N. Y., deal., R. R. | 10.00 to 10.35 |
| N. Y. deal., yd. | 6.25 to 6.50 |
| Pittsburgh, No. 1 | 14.00 to 14.50 |
| St. Louis, No.1 | 12.00 to 12.50 |
| St. Louis, No.2 | 10.75 to 11.25 |
| Valleys, No. 1 | 14.25 to 14.75 |

**COMPRESSED SHEETS**

| | |
|---|---|
| Buffalo | 12.00 to 12.50 |
| Chicago | 11.00 to 11.50 |
| Cleveland | 12.50 to 12.75 |
| Detroit | 10.00 to 10.25 |
| Pittsburgh | 13.75 to 14.00 |
| Valleys | 13.75 to 14.00 |
| E. Pa. new mat. | 11.00 to 11.50 |

**BUNDLED SHEETS**

| | |
|---|---|
| Buffalo | 9.00 to 9.50 |
| Cincinnati, deal | 9.50 to 9.75 |
| Cleveland | 11.50 to 12.00 |
| Eastern Pa. | 9.50 to 10.00 |
| Pittsburgh | 12.75 to 13.00 |
| St. Louis | 7.75 to 8.25 |

**SHEET CLIPPINGS, LOOSE**

| | |
|---|---|
| Chicago | 7.50 to 8.00 |
| Cincinnati | 8.50 to 9.00 |
| Detroit | 7.00 to 7.50 |
| St. Louis | 7.75 to 8.25 |

**STEEL RAILS, SHORT**

| | |
|---|---|
| Birmingham | 11.50 to 12.00 |
| Boston | 8.50 to 9.00 |
| Buffalo | 16.00 to 16.50 |
| Chicago | 15.00 to 15.50 |
| Cincinnati, deal. | 15.25 to 15.75 |
| Detroit | 11.00 to 11.50 |
| St. Louis | 15.50 to 16.00 |

**STOVE PLATE**

| | |
|---|---|
| Birmingham | 13.50 to 14.00 |
| Boston, consumers | 10.00 |
| Buffalo | 13.00 to 13.25 |
| Chicago, net | 11.50 to 12.00 |
| Cinn., deal., net | 8.00 to 8.50 |
| Cleveland | 12.00 to 12.50 |
| Detroit, net | 10.75 to 11.25 |
| Eastern Pa. | 11.00 to 11.50 |
| N. Y., deal., mill. | 6.75 to 7.00 |
| Pittsburgh | 11.50 to 12.00 |
| St. Louis | 12.00 to 12.50 |

**SHOVELING STEEL**

| | |
|---|---|
| Chicago | 12.50 to 13.00 |
| Pittsburgh | 9.75 to 10.00 |
| St. Louis | 11.00 to 11.50 |

**KNUCKLES, COUPLERS SPRINGS**

| | |
|---|---|
| Buffalo | 15.00 to 15.50 |
| Chicago | 14.00 to 14.50 |
| Eastern Pa. | 15.50 to 16.00 |
| Pittsburgh | 15.00 to 15.50 |
| St. Louis | 12.25 to 12.75 |

**LOW PHOSPHORUS**

| | |
|---|---|
| Buffalo, billet and bloom crops | 16.00 to 16.50 |
| Cincinnati, deal. | 12.25 to 13.25 |
| Eastern Pa. | 17.50 to 18.50 |
| Pitts. billet and bloom crops | 18.50 to 19.00 |
| Cleve. billet and bloom crops | 17.00 to 17.50 |

**FROGS, SWITCHES, GUARDS**

| | |
|---|---|
| Chicago | 14.00 to 14.50 |
| St. Louis | 12.50 to 13.00 |

**ANGLE BARS—STEEL**

| | |
|---|---|
| Buffalo | 14.00 to 14.50 |
| Chicago | 14.50 to 15.00 |
| St. Louis | 12.00 to 12.50 |

## Iron Mill Scrap

**RAILROAD WROUGHT**

| | |
|---|---|
| Birmingham | 9.50 to 10.00 |
| Boston, dealers | 9.00 to 9.50 |
| Buffalo, No. 1 | 12.00 to 12.50 |
| Buffalo, No. 2 | 14.25 to 14.50 |
| Chicago, No. 1 | 12.60 to 13.15 |
| Chicago, No. 2 | 12.50 to 13.00 |
| Cinn., No. 1 deal. | 10.50 to 11.00 |
| Eastern Pa. | 15.00 to 15.50 |
| N. Y., No. 1 deal. | 11.00 to 11.50 |
| Pittsburgh, No. 1 | 10.50 to 11.00 |
| Pittsburgh, No. 2 | 14.00 to 14.50 |
| St. Louis, No. 1 | 9.50 to 10.00 |
| St. Louis, No. 2 | 10.75 to 11.25 |

**WROUGHT PIPE**

| | |
|---|---|
| Boston, dealers | 7.00 to 7.50 |
| Eastern Pa. | 12.00 to 12.50 |
| Buffalo | 12.00 to 12.50 |
| New York, deal. | 8.00 to 8.50 |

**YARD WROUGHT**

| | |
|---|---|
| Boston | 8.00 to 8.50 |
| Eastern Pa. | 14.50 to 15.00 |

**BUSHELING**

| | |
|---|---|
| Buffalo | 12.00 to 12.50 |
| Chicago, No. 1 | 11.00 to 11.50 |
| Chicago, No. 2 | 8.50 to 9.00 |
| Cinn., No. 1 deal. | 10.00 to 10.50 |
| Cinn., No. 2 | 6.00 to 6.50 |
| Cleveland, No. 2 | 9.25 to 9.50 |
| Pittsburgh, No. 1 | 12.00 to 12.50 |
| St. Louis, No. 1 | 9.50 to 10.00 |
| Detroit, mixed | 7.25 to 7.50 |

**MACHINE SHOP TURNINGS**

| | |
|---|---|
| Birmingham | 8.00 to 9.00 |
| Boston | 5.25 to 5.50 |
| Buffalo | 8.25 to 8.75 |
| Chicago | 6.75 to 7.25 |
| Cincinnati, deal | 7.50 to 8.00 |
| Cleveland | 6.10 to 6.25 |
| Detroit | 5.00 to 5.25 |
| Eastern Pa. | 10.00 |
| New York, deal. | 6.25 to 6.60 |
| Pittsburgh | 9.00 to 9.50 |
| St. Louis | 7.00 to 7.50 |

**MIXED BORINGS, TURNINGS**
**For blast furnace use**

| | |
|---|---|
| Boston, dealers | 5.00 to 5.50 |
| Buffalo | 9.50 to 10.00 |
| Cincinnati, deal. | 8.00 to 8.50 |
| Cleveland | 9.25 to 9.50 |
| Detroit | 7.00 to 7.50 |
| Eastern Pa. | 9.50 to 10.00 |
| New York, deal. | 6.25 to 6.60 |
| Pittsburgh | 9.75 to 10.00 |

**CAST IRON BORINGS**

| | |
|---|---|
| Birmingham, chem. | 13.00 to 13.50 |
| Birmingham, plain | 8.00 to 9.00 |
| Boston, chem. | 9.50 to 10.00 |
| Boston, dealers | 5.25 to 5.50 |
| Buffalo | 9.50 to 10.00 |
| Chicago | 9.00 to 9.50 |
| Cincinnati, deal. | 8.25 to 8.75 |
| Cleveland | 9.25 to 9.50 |
| Detroit | 7.00 to 7.25 |
| Eastern Pa. | 10.50 to 11.00 |
| Eastern Pa., chem. | 14.50 to 15.00 |
| New York, deal. | 6.25 to 6.60 |
| Pittsburgh | 10.00 to 10.25 |
| St. Louis | 8.75 to 9.25 |
| Valleys | 13.50 |

**PIPES AND FLUES**

| | |
|---|---|
| Chicago, net | 8.50 to 9.00 |
| Cincinnati, deal. | 7.00 to 7.50 |
| St. Louis | 9.00 to 9.50 |

**RAILROAD GRATE BARS**

| | |
|---|---|
| Buffalo | 11.25 to 11.75 |
| Chicago, net | 11.25 to 11.75 |
| Eastern Pa. | 11.50 |
| New York, deal. | 8.00 to 8.50 |
| St. Louis | 11.00 to 11.50 |

**FORGE FLASHINGS**

| | |
|---|---|
| Boston, dealers | 6.00 to 7.00 |
| Buffalo | 12.00 to 12.50 |
| Chicago | 9.00 to 9.50 |
| Cleve., over 10 in. | 11.75 to 12.25 |
| Detroit | 9.00 to 9.50 |
| Pittsburgh | 12.00 to 12.50 |

**FORGE SCRAP**

| | |
|---|---|
| Boston, deal | 5.50 to 6.00 |
| Chicago | 15.50 to 16.00 |
| Eastern Pa. | 11.00 to 11.50 |

**ARCH BARS AND TRANSOMS**

| | |
|---|---|
| Chicago, net | 19.50 to 20.00 |
| St. Louis | 19.50 to 20.00 |

## Iron, Steel Works Scrap

**AXLE TURNINGS**

| | |
|---|---|
| Boston, deal | 6.75 to 7.00 |
| Buffalo | 12.00 to 12.50 |
| Chicago | 10.25 to 10.75 |
| Cleveland | 12.00 to 12.25 |
| Eastern Pa. | 12.00 to 12.50 |
| Pittsburgh | 12.50 to 13.00 |
| St. Louis | 9.50 to 10.00 |

**STEEL CAR AXLES**

| | |
|---|---|
| Birmingham | 17.00 to 17.50 |
| Boston, ship. point | 15.50 to 16.00 |
| Buffalo | 15.75 to 16.25 |
| Chicago | 17.65 to 18.20 |
| Cleveland | 16.00 to 16.50 |
| Eastern Pa. | 19.00 to 20.00 |
| Pittsburgh | 17.50 to 18.00 |
| St. Louis | 18.00 to 18.50 |

**SHAFTING**

| | |
|---|---|
| Boston, ship. point | 12.00 to 12.50 |
| Chicago | 17.35 to 17.90 |
| Eastern Pa. | 17.50 to 18.00 |
| New York, deal. | 14.00 to 14.50 |
| St. Louis | 16.50 to 17.00 |

## Iron Foundry Scrap

**CAR WHEELS**

| | |
|---|---|
| Birmingham, iron | 12.00 to 12.50 |
| Boston, con. | 14.00 to 14.50 |
| Buffalo, iron | 12.25 to 12.75 |
| Buffalo, steel | 15.25 to 15.75 |
| Chicago, iron | 13.00 to 13.50 |
| Chi., rolled steel | 15.50 to 16.00 |
| Cincinnati | 12.00 to 12.50 |
| Eastern Pa. | 16.00 |
| N. Y., iron, deal. | 11.00 to 11.50 |
| Pittsburgh, iron | 14.00 to 14.50 |
| Pittsburgh, steel | 15.00 t o15.50 |
| St. Louis, iron | 13.00 to 13.50 |
| St. Louis, steel | 13.25 to 13.75 |

**NO. 1 CAST SCRAP**

| | |
|---|---|
| Birmingham, cup. | 14.00 to 14.25 |
| Boston | 14.00 to 14.50 |
| Boston, textile | 13.25 to 13.50 |
| Buffalo | 14.25 to 14.50 |
| Chicago, machiny. | 15.95 to 16.50 |
| Chicago, railroad. | 14.30 to 14.85 |
| Chicago, agri. | 14.00 to 14.55 |
| Cincinnati, mach. cupolas, net deal. | 14.50 to 15.00 |
| Cleveland, cupola | 15.50 to 16.50 |
| Detroit, net | 12.25 to 12.75 |
| Eastern Pa. cupola | 16.00 |
| N. Y., cup., deal. | 13.00 to 13.50 |
| Pittsburgh, cupola | 14.00 to 14.50 |
| San Fran., del. | 20.00 to 21.00 |
| Seattle | 14.50 to 15.00 |
| St. Louis, railroad | 13.00 to 13.50 |
| St. Louis, agri. | 13.00 to 13.50 |
| St. Louis, machy. | 13.00 to 13.50 |
| Valleys | 16.50 to 17.00 |

**HEAVY CAST**

| | |
|---|---|
| Boston | 10.50 to 11.00 |
| Buffalo, breakable | 11.50 to 12.00 |
| Cleve., breakable | 12.25 to 12.50 |
| Detroit, auto., net | 20.00 to 21.00 |
| Detroit mach., net | 12.75 to 13.25 |
| Eastern Pa. | 15.50 |
| New York, deal. | 11.50 to 12.00 |
| Pittsburgh | 12.00 to 12.50 |

**MALLEABLE**

| | |
|---|---|
| Boston, railroad | 13.50 to 14.50 |
| Buffalo | 15.00 to 15.50 |
| Chicago, agri. | 11.75 to 12.25 |
| Chicago, railroad | 12.75 to 13.25 |
| Cinn., R. R., deal. | 12.00 to 12.50 |
| Cinn., agri., deal. | 11.75 to 12.25 |
| Cleveland, agri. | 15.00 to 15.50 |
| Cleveland, rail. | 15.50 to 16.00 |
| Detroit, auto | 14.50 to 15.00 |
| Pittsburgh, rail. | 14.00 to 14.50 |
| St. Louis, agri. | 11.50 to 12.00 |
| St. Louis, rail. | 11.50 to 12.00 |

## Miscellaneous Scrap

**RAILS FOR ROLLING**
**5 feet and over**

| | |
|---|---|
| Birmingham | 11.50 to 12.00 |
| Boston, dealers | 9.50 to 10.00 |
| Buffalo | 14.25 to 14.75 |
| Chicago | 14.75 to 15.25 |
| Eastern Pa. | 14.75 to 15.25 |
| New York | 11.00 to 11.50 |
| Pittsburgh district | 16.00 to 16.50 |
| St. Louis | 13.00 to 13.50 |

**LOCOMOTIVE TIRES**

| | |
|---|---|
| Chicago, No. 1 | 13.50 to 14.00 |
| Chicago, cut | 15.50 to 16.00 |
| St. Louis, No. 1 | 12.00 to 12.50 |

**LOW PHOS. PUNCHINGS**

| | |
|---|---|
| Chicago | 14.00 to 14.50 |
| Pittsburgh | 16.50 to 17.00 |

features the scrap dealers' buying market here. These reductions affect turnings, borings, mixed borings and turnings and cast iron car wheels. Other grades, although unchanged, are weak. Cast scrap is moving moderately well, with dealers paying $15, delivered, for machinery cast for Phillipsburg, N. J., and the same for heavy breakable for Florence, N. J.

**Buffalo, June 26.**—There is no activity in scrap, new buying being small and deliveries restricted by some steelworks. Dealers are making small purchases and some prices are 25 cents a ton lower in nominal quotations.

**Pittsburgh, June 26.**—While only a fair sized tonnage of scrap is said to have been purchased by a West Virginia mill at $14.50, nothing has been sold in this territory for several days except single carloads. Price softness continues, several grades being down 25 or 50 cents per ton. Dealers' yard stocks are low and scrap offerings by industrial makers are quickly snapped up by mills direct, two large local interests having been awarded the Westinghouse Electric & Mfg. Co.'s July scrap. Heavy melting steel is still quoted at $14 to $14.50, while steel specialties now are $15 to $15.50. Some machine shop turnings were sold at $9 and some shoveling steel turnings at $10 to $10.25.

**Cleveland, June 26.**—Iron and steel scrap dealers look for lower prices, in keeping with decline in consumption. Shipments have not shown marked recession, but most consumers are fortified with fairly large stocks. This is reflected in closer regulation of shipments. New buying is quiet. The movement of scrap into this territory from the Detroit district continues active. Prices are unchanged.

**Cincinnati, June 26.**—Scrap is moving a little better but in small tonnages for immediate delivery. Prices are unchanged and dealers believe they are at bottom.

**Detroit, June 26.**—Iron and steel scrap grows weaker as production by Detroit automotive interests holds steady at a high level and users, especially in the Pittsburgh and Youngstown districts, show a tendency to reject, hold up and cancel. Compressed sheets are off 25 cents at $10 to $10.25. Turnings are now at $5 to $5.25 and No. 1 heavy melting steel at $10.50 to $11. A Hamilton, Ont., melter has closed on 10,000 to 12,000 tons of turnings. The Chevrolet list for July includes 160 cars of borings and 50 cars of turnings at Flint and 60 cars of turnings at Detroit. Every indication points to the market growing weaker before it again grows stronger.

**St. Louis, June 26.**—General conditions in iron and steel scrap, including prices, remain unchanged. Buying is confined to small tonnages for prompt delivery, and inquiry and sales for third quarter have been light.

Offerings are liberal, but yard stocks are of moderate proportions, except in the case of several smaller operations. Consumers are taking contract quotas as a rule, there being few requests for delayed shipment.

## Canadian Scrap

**MONTREAL**

**Per Gross Ton**

| | |
|---|---|
| Iron axles | $22.00 |
| Steel axles | 20.00 |
| Car wheels | 16.00 |
| Stove plate | 13.00 |
| Wrought pipe | 5.00 |
| Turnings | 5.00 |

**TORONTO**

| | |
|---|---|
| Steel axles | 13.50 to 14.00 |
| Iron axles | 15.50 to 16.00 |
| Heavy melting steel | 8.00 to 8.50 |
| Turnings | 6.50 to 7.00 |
| No. 1 mach. cast | 14.50 to 15.00 |

**Birmingham, Ala., June 26.**—Quotations on iron and steel scrap are low and purchasing is in small lots, meeting immediate needs. Heavy melting steel is still being sold at $10.25.

**Toronto, Ont., June 26.**—While there has been little development in iron and steel scrap during the week, inquiry for steelmaking scrap has increased. Hamilton, Ont., consumers are beginning to show interest, but so far this has been confined to inquiry. A steady demand is reported for heavy melting steel and turnings by Hamilton consumers. Montreal dealers are experiencing a growing demand for most lines of old material, for domestic account and export. Wrought iron and steel axles are scarce in this district despite the fact that dealers are offering $22 and $20, gross ton, respectively.

**Philadelphia, June 26.**—Iron and steel scrap is 50 cents lower on principal grades. This is shown in large purchases by Bethlehem Steel Co. It has bought about 10,000 tons of blast furnace borings and turnings at $9.50 delivered Bethlehem and $10 delivered Steelton and Sparrows Point. It also today placed a substantial tonnage of heavy melting steel at $13, delivered, which now is the top of the market. Other users bought No. 2 steel at $10.50, delivered, bundled sheets at $9.50 delivered and turnings at $10 delivered. These prices are 50 cents below previous levels.

## Buffalo Rate Easing

Buffalo, June 26.—This week's operating schedules indicate 86 per cent of the district's open-hearth units will be making steel. Doubt is expressed at steelworks whether this high rate will be maintained next week but if early July business should improve, as some sellers expect, there is likely to be an early restoration of high production.

# Semifinished

**Prices for Third Quarter Lower —Buyers Slow to Cover Their Needs**

SPECIFICATIONS for all forms of semifinished steel are slow and consumers seem in no hurry to buy into the future. Third quarter tonnages are being covered at about $1 below second quarter prices. Some low prices on sheet bars and billets have been made as an incentive for consumers of these commodities to place business. Wire rod users seem well supplied.

SEMIFINISHED STEEL PRICES, PAGE 1684

**Pittsburgh, June 26.**—Semifinished steel specifications are quiet. Not all third quarter requirements have been booked although some larger users have renewed arrangements with present sources on billets, 4 x 4-inch selling at as low as $32. Some makers have gone as low as $32.50 to inspire sheet bar specifications but not much extended delivery business is done at that level. The $33 figure is more common in both open-hearth and bessemer sheet bars. Forging billet specifications are rather spotty. Some plants utilizing forging billets are operating full day and night while others are on part time. This price holds well to $38. Wire rods are held at $44 but little is being sold at that level, users being well supplied with lower cost rods. Skelp is quoted at 1.85c to 1.90c, but little is being done at the latter figure.

**Youngstown, O., June 26.**—Contracts are being closed this week for third quarter for various forms of semifinished steel at quotations $1 a ton lower than prevailed generally in second quarter. Sheet bars are being sold at $33, Pittsburgh and Youngstown, as against $32.50 to $34 previously; and billets are bringing $32, same bases, against $33 previously. Buyers are covering needs slowly, but revival of activity among sheetmakers and continued activity with strip mills seems to presage a fair summer's activity with makers of semifinished steel here.

## Sets Open Hearth Record

Toronto, Ont., June 26.—The No. 1 open hearth of the Algoma Steel Corp. at Sault Ste. Marie, Ont., recently made 1325 tons of steel in 24 hours, breaking the former record of 1315 tons made in March, 1925.

Tinted office partitions, in colors of green, old ivory, French gray, clouded bronze, etc., are being produced by the E. F. Hauserman Co., Cleveland, and have been added to the line of steel partitions manufactured by that company.

# Bars

**Resistance to Advanced Price for Third Quarter—Specifications Are Less**

CONSUMERS of steel bars are taking a stand against 1.90c, Pittsburgh, for third quarter and extension of second quarter contracts at 1.85c has strengthened their stand. Chicago mills have not announced a price for that delivery, estimating the effect of weaker Pittsburgh prices. Specifications and new buying have declined. At Chicago deliveries now are three weeks deferred.

BAR PRICES, PAGE 1683

**Chicago, June 26.**—Producers are withholding definite announcement of third quarter prices. Reports of weakness in the 1.90c, Pittsburgh, price for third quarter contracting are being weighed here in the light of possible difficulty in maintaining the second quarter 2.00c, Chicago, quotation for the third period, but producers feel the Chicago district market can maintain a spread above $2 over Pittsburgh if competition from eastern mills does not grow. Sales are reported by eastern mills at 1.95c, Chicago, and water shipments into this territory are steady. Continued heavy specifications for bars and other lighter products help strengthen 2.00c here, as many of the metal-working industries using bars are paying over 2.00c, owing to quantity bar differentials in effect for several months.

Bar specifications are close to production. One mill reports several contracts, one for 1000 tons of bars and other material, having been closed at 2.00c, but in general there is no interest in third quarter. Backlogs are declining steadily but specifications are active in cleaning up second quarter obligations and for current requirements. Both automotive and farm equipment industries give promise of continued demand for bars. Automotive parts makers, including forgers and spring and axle manufacturers, are taking material at the rate of the past several months. Tractor plants continue capacity operations and road machinery business is good. Deliveries on bars have eased to two to three weeks.

Demand for rail steel bars continues moderately active in most lines, with reinforcing bar business heavy. Both Chicago Heights mills are operating at full double turn. Seasonal influences are affecting some lines of consumption. Rail steel bars are 1.90c, Chicago Heights, for third quarter. Bar iron is 2.00c, Chicago.

**Pittsburgh, June 26.**—While hot rolled merchant steel bar makers still are quoting 1.90c, it is becoming increasingly difficult to hold that figure in view of the fact that extension of contracts through third quarter at 1.85c has been more liberal. Sales resistance has been increasingly severe against 1.90c the nearer third quarter has come. Some buyers are even taking a stand against a continuation of 1.85c, claiming they should have a reduction. Specifications have fallen off on second quarter contracts and only small lots are being taken out. Some consumers who have contracted for third quarter at 1.90c are now holding out for adjustments.

**Cleveland, June 26.**—Most users of soft steel bars continue indifferent to their third quarter requirements and producers are not actively soliciting business. On recent spot sales 1.85c, Cleveland or Pittsburgh mill, has governed and present indications are more favorable to a continuation of this price than for the advance to 1.90c. Local mills state they are withholding soliciting next quarter business until the Pittsburgh price is determined. It is reported that the present Cleveland bar price situation, which is unfavorable to outside mills, may be adjusted.

**Detroit, June 26.**—Some makers have taken considerable third quarter business at 1.85c, Pittsburgh, the level which governed most of the second quarter. Except for occasional small sales, 1.90c is not a market factor. Several important users are taking bars from Cleveland or Buffalo mills for water shipment at prices below 1.85c, Pittsburgh. Bar mill products promise to move into this district in July at almost the same level as in June and automotive consumption this summer shows a much milder dip than usual.

**Philadelphia, June 26.**—Fair specifications against second quarter contracts feature the steel market here. The mills generally are asking 1.90c, Pittsburgh, on third quarter business but so far there has been little test.

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Heating costs in the production of a ton of open-hearth ingots is 25 to 30 per cent of total conversion cost.

# Plates

**Backlogs Are Diminishing at Chicago—New Orders Light but Inquiries Good**

BUYING of steel plates in the past week was unmarked by any large transactions. Specific lettings were few and required small tonnages while contracting for third quarter also showed little signs of life. The advance by Pittsburgh district mills to 1.90c, Pittsburgh, for third quarter, is not proving successful, continuation of some 1.85c coverage leading most buyers to delay purchases.

PLATE PRICES, PAGE 1683

**Chicago, June 26.**—Backlogs of plate orders are sagging rapidly and practically no forward buying is reported. The 2.00c, Chicago, quotation is virtually untested for forward business. Car building specifications are being cleaned up. It is expected that 3500 to 4000 tons of the Erie car order will come into this district. The Denver water line, requiring 12,000 tons of plates, will be closed shortly. Third quarter requirements for boiler work in this district will take 5000 tons of plates. Plans for the building of three scows call for 1000 tons, and several smaller inquiries are out for third quarter. The Detroit-Windsor, Canada tunnel will require 3500 tons of plates and other structural material. Oil tankage business is suspended. Deliveries are two to three weeks on most sizes.

**Pittsburgh, June 26.**—Buyers of plates are awaiting the next move on the part of the producers, having taken a decided stand against paying the advanced figure of 1.90c for third quarter. Those who signed up at 1.90c are withholding shipping instructions. Some customers have been able to obtain from their sources of supply extensions of the 1.85c figure through the third quarter. With but one or two exceptions, large inquiries are absent from the plate market, several single units in river craft are up for bids, with one or two fleets of barges.

**Cleveland, June 26.**—Practically no third quarter contracting in plates has been done because of the uncertain price situation. Mills are not pressing the 1.90c, Pittsburgh, level and consumers are not anxious to cover. Recent spot sales have been at 1.85c. About 1000 tons in small lots is pending for shipyard work.

## CONTRACTS PLACED

570 tons, carfloat for Atchison, Topeka & Santa Fe, San Francisco, to Moore Drydock Co.
150 tons, four barges for United States en-

gineers, Rock Island, Ill., to Biggs Boat & Boiler Co.
Unstated tonnage, one oil barge for Atlantic, Gulf & Pacific Oil Co., New York, to Dravo Contracting Co.

## CONTRACTS PENDING

1000 tons, six hopper and six deck barges for Page & Jones, shipbuilders, Mobile, Ala.; bids being considered.
800 to 1000 tons, three scows for Marine Iron & Shipbuilding Co., Chicago.
100 tons, 24-inch riveted pipe for Sacramento, Calif.; bids in June 28.

# Bolts, Nuts, Rivets

### Prices Firm in Spite of Moderate Production and Demand

NUT AND BOLT PRICES, PAGE 1684

**Pittsburgh, June 26.**—Price firmness, true of the nut, bolt and rivet market for more than a year past, continues. Incoming orders are sufficient to maintain an average operation of 60 per cent but there is no tendency to shade prices to inspire additional buying. Jobber orders are scarce and large users take only what they absolutely need. Structural shops keep up a fairly steady buying. Nuts and bolts are 70 off; small rivets 70 and 10 off, is noted. Specifications generally are easier than a month ago, but opera- and large rivets 2.90c.

**Chicago, June 26.**—An improvement in specifications for bolts, nuts and rivets by farm implement makers tions have not tapered to a marked extent. Third quarter contracting is well along. Structural rivets in carload lots are being sold for that period on the basis of 3.00c, Chicago.

**Cleveland, June 26.**—Specifications for bolts and nuts continue active, the current rate showing a slight improvement over that earlier in the month. Contracting for third quarter is nearly completed and in good volume. Rivet buying still is slow. Operations average about 65 per cent for bolt and nut makers with rivet interests on a lower basis.

## Foundry Orders Jump

Cleveland, June 26.—Orders for foundry equipment in May, according to reports of 21 producers to the Foundry Equipment Manufacturers' association, were the heaviest since the data has been tabulated on an index basis. Following are monthly comparisons:

| | 1925 | 1926 | 1927 | 1928 |
|---|---|---|---|---|
| Jan. | 104.2 | 168.2 | 180.4 | 132.7 |
| Feb. | 108.8 | 154.9 | 198.0 | 123.6 |
| Mar. | 159.3 | 157.3 | 131.1 | 138.6 |
| Apr. | 124.3 | 113.2 | 130.0 | 107.7 |
| May | 113.3 | 128.5 | 134.8 | 335.6 |
| June | 110.5 | 133.5 | 138.4 | ..... |
| July | 117.0 | 127.3 | 89.9 | ..... |
| Aug. | 190.0 | 141.2 | 106.4 | ..... |
| Sept. | 94.2 | 114.0 | 80.4 | ..... |
| Oct. | 149.5 | 140.5 | 98.0 | ..... |
| Nov. | 180.3 | 133.4 | 95.8 | ..... |
| Dec. | 140.1 | 181.0 | 106.8 | ..... |

Base: Average monthly shipments for 1922-23-24.

Water pipes made of cast iron were in use as early as the middle of the eighteenth century.

# Pipe

### Mills Book 50,000-Ton Gas Line —Tube Prices Advanced—Cast Market Moderately Active

FEATURING recent line pipe activity was the booking by two mills of 50,000 tons of gas and oil line for a Cities Service Co. subsidiary. Merchant pipe buying by jobbers continues fair. Prices on welded boiler tubes have been advanced 5 per cent, and charcoal tube makers advanced quotations 2½ per cent. Cast pipe is moderately active. Massachusetts seeks 4000 tons of 30-inch.

PIPE PRICES, PAGE 1684

**Pittsburgh, June 26.**—Lapweld pipe operations are 40 to 45 per cent while buttweld mills are on a 70 per cent average basis. It takes many orders of the latter to make up for the lack of the larger diameter pipe due to the falling away of the oil country goods demand. Jobbers are ordering fairly well in standard full weight merchant pipe, but restricted drilling activity militates against large purchases of lapwelded. Empire Gas & Fuel Co., subsidiary of Cities Service Co., placed its 50,000-ton order for southwestern installation, comprising a 10¾-inch seamless oil line and a 20-inch gas line. This was divided between National Tube Co. and Spang, Chalfant & Co. Inc., the former receiving 80 miles of 20-inch and 14 miles of 16-inch for gas line and 161 miles of 10¾-inch for oil line. Spang Chalfant received 42 miles of 20-inch and 181 miles of 10¾-inch. Despite the relatively poor buying rate in pipe, prices are held firmly.

Welded boiler tube makers have advanced net prices on steel tubes about 5 per cent by revising supplementary discounts, and now instead of seven 5's beyond the card, give six 5 per cents when purchases amount to at least 21,000 pounds. Charcoal tube makers have advanced their net prices about 2½ per cent, giving two 10's and one 2½ instead of two 10's and one 5.

**Boston, June 26.**—Massachusetts has awarded a job to the C. & R. Construction Co. involving 4000 tons of 30-inch pipe, but the contract for the pipe, it is understood, has not been placed. Private business continues in only fair volume as the dullest season of the year is on. There has been no change in prices. The price on 4-inch pipe is $45.10 to $46.10 delivered to common freight rate points, Boston, while 6 to 12-inch pipe remains firm at $41.10 to $42.10. Concessions are still available on the larger sized pipe. The customary differential of $5 continues asked on Class A and gas pipe.

**New York, June 26.**—Cast pipe demand remains rather dull, with more than 1100 tons for this city a feature of municipal inquiry. Prices are unchanged, although sentiment appears slightly stronger, sellers anticipating an improvement in July.

Pennsylvania railroad will open bids July 29 on 265 tons of merchant pipe.

**Chicago, June 26.**—Orders being placed for cast iron water pipe by contractors are in good volume, the amounts in some instances being 1500 to 2500 tons each. Prices continue steady at $31 to $33, base Birmingham, for larger sizes. St. Paul will close for revised bids on its 1000 tons of 6 to 12-inch pipe, July 3.

**Birmingham, Ala., June 26.**—Production and shipments of cast iron pipe are being kept steady, output being estimated around 85 per cent of capacity. New lettings are not numerous and unfilled tonnage is slightly lower. Purchase of controlling stock by James B. Clow & Sons, Chicago, of the National Cast Iron Pipe Co. should mean further development of the latter's plants.

**Cleveland, June 26.**—Although not in as heavy demand as is usual at the season, merchant pipe releases from jobbers have been fair in the past week. Prices are characteristically strong, although an occasional weakness appears in quotations from jobbers. Several attractive lots for building work recently have been placed in this district.

## CONTRACTS PLACED

1260 tons, 20-inch class B, Los Angeles, to Grinnell Co.
884 tons, 6 to 12-inch class 250, Los Angeles, to American Cast Iron Pipe Co.
700 tons, 16-inch pipe for Niles Center, Ill., through contractor to Lynchburg Foundry Co.
115 tons, 4 to 6-inch pipe for Chillicothe, O., to James B. Clow & Sons.
100 tons, 12-inch pipe for Beverly, Mass., to Warren Foundry & Pipe Co.

## CONTRACTS PENDING

4000 tons, 30-inch pipe for state of Massachusetts.
1000 tons, 6, 8 and 12-inch pipe for St. Paul; revised bids July 3.
1000 tons, 6 and 12-inch pipe for Morton Grove, Ill.; bids June 26.
590 tons, cast iron manhole covers and frames, New York; bids opened at offices of president of Borough of Manhattan, with Staten Island Shipbuilding Co., low.
536 tons, department of water supply, gas and electricity, New York; bids June 29; tonnage includes 310 tons, 4 to 12-inch cast pipe, 179 tons of boxes and 47 tons of special castings.
300 tons, 4 to 10-inch class B, Burbank, Calif.;

C. G. Claussen & Co. Inc. low.
271 tons, 48-inch class B, sewer in West Hanford street, Seattle; bids in July 6.
100 tons, pipe for Marlboro, Mass.; bids July 2.
100 tons, pipe for Chelsea, Mass.; bids July 2.

## Tin Plate

**Can Demand Holds—Holiday Interruption To Be Short**

TIN PLATE PRICES, PAGE 1683

**Pittsburgh, June 26.**—No letup has occurred as yet in tin plate specifications. General line can demand is well sustained, there being no apparent seasonal decline, as in the case of packers' cans. Demand for the latter is uninterrupted so that operations average about 95 per cent. American Sheet & Tin Plate Co. is still on a 90 per cent schedule, which means most of its plants are running full. While some mills desire to shut down for a longer period than the July 4 holiday to make repairs, overhaul equipment, etc., this will not be possible owing to demands from container manufacturers. From preliminary reports it would seem that despite the fact that the season is two or three weeks late, vegetable and fruit packs will be larger than ever. The price is $5.25.

## Auto Production Remains at Higher Level

Washington, June 26.—Production of automobiles, passenger cars and trucks in May, totaled 425,990 for the United States and 33,292 for Canada. Domestic production was the heaviest since August, 1926. Further comparisons of output by months follow:

| | United States | | | Canada† |
|---|---|---|---|---|
| 1926 | Total | Passenger cars | Trucks | Total |
| Total | 4,298,802 | 3,808,753 | 490,049 | 204,550 |
| 1927 | | | | |
| May | 404,115 | 357,150 | 46,965 | 25,708 |
| Total, 5 mos. | 1,747,007 | 1,523,891 | 223,116 | 106,973 |
| June | 321,969 | 278,729 | 43,238 | 19,208 |
| July | 268,485 | 236,868 | 31,617 | 10,987 |
| Aug. | 308,826 | 274,381 | 34,445 | 12,526 |
| Sept. | 260,387 | 226,443 | 33,944 | 11,262 |
| Oct. | 219,719 | 183,042 | 36,677 | 7,791 |
| Nov. | 134,416 | 109,758 | 24,658 | 6,617 |
| Dec. | 133,579 | 106,080 | 27,499 | 3,435 |
| Total | 3,394,386 | 2,939,192 | 455,194 | *178,799 |
| 1928 | | | | |
| Jan. | 231,693 | 205,576 | 26,117 | 8,463 |
| Feb. | 323,809 | 291,151 | 32,658 | 12,504 |
| March | 413,379 | 371,821 | 41,558 | *17,478 |
| April | *410,189 | 364,877 | *45,312 | 24,240 |
| May | 425,990 | 375,798 | 50,192 | 33,942 |
| Total 5 mos. | 1,805,060 | 1,609,223 | 195,837 | 96,627 |

†Reported by Dominion bureau of statistics.
*Figures revised and corrected to date.

## Purchasing Agent Quits

Pittsburgh, June 26.—Thomas J. O'Brien has resigned as secretary and director of purchases of the Fort Pitt Malleable Iron Co. after 25 years with the company.

# Sheets

**Specifications in Valley, at Youngstown Higher — Prices Spotty, Weakness Predominates**

NEW business of Youngstown mills has been sufficient to bring the highest operating rate of the year, and some makers have a firmer price attitude. Specifications also are improved at Pittsburgh, but operations are held down. Chicago mills lack tonnage orders and will be down most of next week. Automotive needs decline slowly.

SHEET PRICES, PAGE 1683

**Pittsburgh, June 26.**—Actual specifications accruing to sheet mills in this locality are on a higher plane than operating rates, hence something in the way of a backlog is being piled up against the lean weeks ahead in the hot summer months. In some cases the buying rate would support operations equivalent to 85 per cent. While American Sheet & Tin Plate Co. has been operating below 70 per cent this week, it has a 75 per cent schedule for the present week but will suffer a setback next week on account of the holiday. Specifications are miscellaneous in character. Automobile buying has been dwindling considerably during recent weeks. More price deflections are encountered than a week ago and the market still lacks strength. While occasionally a price lower than 2.00c is obtained by a buyer of blue annealed, it usually is uncovered on narrow material from stripmakers, sheet manufacturers making 2.00c their minimum on attractive tonnages. Some quote 2.10c and obtain that on small quantities. Black sheets are quoted at 2.65c to 2.75c, the latter figure not having entirely disappeared. Flat galvanized sheets are quoted at 3.50c to 3.60c. A price as low as 3.40c has appeared in some cases where jobbers have bought roofing sheets—where not much attention was paid to quality.

**New York, June 26.**—Demand for sheets reflects fair vitality in this territory and altogether is as good as at any time in the past two or three months. In some directions a slight improvement has been noted. Eastern sheet mills are operating 60 to 80 per cent. There has been some small contracting for third quarter. Prices obtained on blue annealed continue to range from 2.00c to 2.10c, base, Pittsburgh, and wide hot rolled strip steel of blue annealed quality is selling around 1.90c, base, Pittsburgh, on a sheet basis and 1.80c base, Pittsburgh, on a plate basis. Galvanized sheets generally are bringing 3.50c with an occasional sale at 3.45c. Black sheets are 2.65c to 2.75c.

**Buffalo, June 26.**—Bookings of special grades of sheets for third quarter delivery are heavy. A district manufacturer of automobile radiators found some makers unable to accept orders for Aug. 1 delivery owing to previous contracts. Black sheet business is slow in comparison with peak demand of the quarter but district mills continue operation at former high rates.

**Youngstown, O., June 26.**—Independent sheetmakers appear even more determined not to meet all the low quotations of other districts, especially on blue annealed and galvanized. In fact, blue annealed sheets' minimum has moved upward by $2 a ton to a base of 2.00c, Pittsburgh, the valley range being 2.00 to 2.10c; and a considerable volume of third quarter contracts have been closed at this basis. Valley galvanized makers refuse to take on orders below 3.65c as minimum, preferring to supply only old customers. The new galvanizing plant at Falcon works at Niles has been started by the Empire Steel Corp.

Such has been the inflow of specifications that on Monday independents started 113 units out of 127, the greatest number in one week so far this year. One important sheetmaker here established a new sales record for one day just last week, and now it has sufficient business to run it well through July. With the annual Amalgamated wage settlement out of the way, valley mills expect a more active summer than they had hoped.

Common black sheets carrying the usual extras to large buyers can be had down to 2.65c, Pittsburgh, but carloads are at 2.75c and higher. Autobody sheets hold at 4.00c.

**St. Louis, June 26.**—Producers and distributors of sheets report decided improvement in new business. Orders are in larger volume and from more diversified sources. Users' stocks are low. The leading local producer reports 100 per cent operations in all departments except galvanizing, and that is doing better, with prospects of 80 per cent by the middle of the week. Tin plate continues active, with a fair volume of reordering by interests which had underestimated their requirements. One pass cold rolled and blue annealed sheets are reported moving in satisfactory volume. Prices have eased slightly. On a basis of f.o.b. Gary, Ind., one pass cold rolled are quoted at 2.80c; blue annealed at 2.15c to 2.25c; galvanized at 3.65c.

**Detroit, June 26.**—Sheet sellers have received occasional holdups but these are attributed to inventory-taking and

(*Continued on Page* 1699)

# Structural Shapes

**Fabricated Lettings in Heavy Week Featured By 12,000-Ton New York Hotel Award—Plain Material Buyers Balk at 1.90c**

FABRICATED structural steel during the week was featured by awarding of a 12,000-ton hotel in New York. Lettings of the week were higher than seasonally normal. A number of heavy inquiries continue pending, including 8000 tons for the first unit of a 20,000-ton apartment store addition in Brooklyn, N. Y., 14,000 tons for a bridge at Louisville, Ky., 6000 tons for a New York apartment and several bridges in Cleveland.

Buyers of plain structural material balk at the 1.90c, Pittsburgh, price quoted for third quarter, and many are finding 1.85c coverage extended. Pittsburgh district mills have entered the Chicago territory at prices lower than 2.00c, Chicago, the expected third quarter price of that group. Fabricated quotations continue to be reduced.

STRUCTURAL SHAPE PRICES, PAGE 1683

**New York, June 26.**—Structural buying is featured by the placing of 12,000 tons for the Hotel New Yorker. Prospective work continues to accumulate heavily in the local market. While no specifications have been issued, it is understood reliably that 20,000 tons will be required eventually for the addition to Abraham & Straus department store in Brooklyn. The first unit will take around 8000 tons. Specifications are expected out shortly for a 6000-ton apartment at Forty-ninth street and East river, and other sizable jobs are regarded as imminent. A revival in school work is noted, with an inquiry for a 3000-ton high school leading.

**Boston, June 26.**—One of the best lots awarded in recent weeks in the structural market was let to the New England Structural Co., an order for 1800 tons for a United States Gypsum Co. plant. Boston & Maine railroad awarded 350 tons for a new bridge at Somerville, Mass.

**Philadelphia, June 26**—Pencoyd, Pa., now is a basing point for structural shapes in the Philadelphia district. Bethlehem Steel Co. yesterday started equalizing with Pencoyd on Philadelphia shipments. A range of 2.00c to 2.05c, Pencoyd, which applies to ordinary business is equivalent to 2.06c to 2.11c, delivered Philadelphia. The general tone of shape prices is far from strong and in some cases preferential customers are getting shapes at several dollars a ton less.

An interesting structural project is pending in this district, alternate bids being taken for electric arc welding and riveting on the Hotel Chalfonte power house at Atlantic City, N. J.

**Pittsburgh, June 26.**—Inability to obtain the announced 1.90c price for third quarter has become more pronounced as makers show more of a tendency to extend third quarter coverage at the second quarter figure of 1.85c. Some producers still quote 1.90c but have done nothing and their customers state they will take their business elsewhere unless they revise their asking figure downward by at least $1 per ton. Awards during the past week have been small.

**Chicago, June 26.**—With practically no interest by fabricators in the building of stocks, or ordering against the future, market activity consists of specifications for projects immediately at hand. Inquiries continue good both in the Chicago territory and west. Reports indicate that eastern mills have made prices lower than 2.00c, Chicago, for some material taken in this district recently, but local mills are taking practically no forward tonnage and third quarter prices are not announced. At least one mill indicates that 2.00c will be named for third quarter.

**Cleveland, June 26.**—Little contracting has been done for plain structural material by fabricators and manufacturers in this district. Although 1.90c, Pittsburgh, is the price named by several producers, buyers report that 1.85c has not disappeared. Fabricated activity is featured by issuance of inquiry for widening Nickel Plate and New York Central railroad bridges in East Cleveland.

## Awards Compared

| | Tons |
|---|---|
| **Awards this week** | **32,596** |
| **Awards last week** | **73,597** |
| **Awards two weeks ago** | **23,810** |
| **Awards this week in 1927** | **32,555** |
| **Average weekly awards, May** | **27,303** |
| **Average weekly awards, 1928** | **39,284** |
| **Total awards to date, 1927** | **894,304** |
| **Total awards to date, 1928** | **982,098** |

## CONTRACTS PLACED

12,000 tons, New Yorker hotel, New York, to American Bridge Co.

2500 tons, building for American Chatillon Co., Rome, Ga., to McClintic-Marshall Co., announced last week as 3000-ton building in Atlanta.

2000 tons, Harmon sports arena, Chicago, to unstated fabricator.

1800 tons, plant for United States Gypsum Co., Boston, to New England Structural Steel Co.

1800 tons, Medical and Dental building, Spokane, Wash., to Hofius Steel & Equipment Co.

1500 tons, Marshall Field apartments, Chicago, to American Bridge Co.

1000 tons, bridge for Chicago & North Western railroad, Nelson, Ill., to Wisconsin Bridge & Iron Co.

900 tons, factory for Illinois-Pacific Glass Co., Vernon, Calif., to Llewellyn Iron Works.

850 tons, Y. W. C. A., Detroit, through the F. R. Patterson Construction Co., to Massillon Bridge & Structural Co.

800 tons, miscellaneous state bridge work, Vermont, to various fabricators including American Bridge Co., which booked a 200-ton bridge, in addition to 1600 tons noted placed last week with several fabricators.

764 tons, included in following awards:
Cox bakery, Jamaica, Long Island, N. Y., to McClintic-Marshall Co.;
Capital club, 1260 Ocean avenue, Brooklyn, N. Y.; and
School, Bleecker and Vincent streets, Macbeth, Long Island, N. Y., to George A. Just Co.

720 tons, state theater, Philadelphia, to Shoemaker Bridge Co.

700 tons, foundry for Delco-Remy Co., Anderson, Ind., to Indiana Bridge Co.

650 tons, bridgework for Illinois, to Vincennes Bridge Co.

600 tons, plant for U. S. Hoffman Machinery Co., Syracuse, N. Y., to American Bridge Co.

600 tons, bridgework in Will county, Ill., to Wickes Bros.

500 tons, Fulton National bank building, Lancaster, Pa., to Shoemaker Bridge Co.

500 tons, St. Michaels high school, Chicago, to New City Iron Works.

500 tons, building for Society of Tammany, Union square, New York, to Bethlehem Steel Co.; this was reported placed last week with unnamed fabricator.

470 tons, apartment, Franklin avenue, Los Angeles, to Baker Iron Works.

350 tons, three highway bridges, Lucas county, O., to American Bridge Co.

350 tons, Boston & Maine railroad bridge, Somerville, Mass., to Boston Bridge Works Inc.

300 tons, Home Economics building, Washington State university, Pullman, Wash., to Hofius Steel & Equipment Co.

300 tons, train sheds for Durant Motors Inc., at Lansing, Mich., to Flint Structural Steel Co.

275 tons, carfloat for Atchison, Topeka & Santa Fe, San Francisco, to Moore Drydock Co.

232 tons, miscellaneous small jobs, including the Grand Maris school, Grand Maris, Mich., Graham-Paige Motor Co. building, Detroit, and plant building at Napoleon, O., to Massillon Bridge & Structural Co.

200 tons, building, 25 East Sixty-second street, New York, to Hinkle Steel Construction Co.

130 tons, Pennsylvania railroad bridges, to Bethlehem Steel Co. and American Bridge Co.

180 tons, dam, power house and penstock, Eugene, Oreg., to unnamed interest.

150 tons, miscellaneous work including postoffice building, Denora, Pa., and tipple repairs at Jerome, Pa., to John Eichleay Jr. Co.

150 tons, building for Wheeling Steel Corp., Beech Bottom, W. Va., to unnamed fabricator.

150 tons, Kroger Grocery & Baking Co. building at Grand Rapids, Mich., to Flint Structural Steel Co.

150 tons, bridges for state highway department at Winchester, Ind., to Indiana Bridge Co.

125 tons, building for Revere Hosiery Co., Philadelphia, to Montgomery Iron & Steel Co., through William Steele & Sons Co.

125 tons, Pennsylvania railroad bridges, to American Bridge Co.

110 tons, machine shop for Borg-Warner, Muncie, Ind., to Indiana Bridge Co.

110 tons, bridgework for state highway department, Michigan, to Massillon Bridge & Structural Co.

105 tons, foundry for Swayne-Robinson Co., Richmond, Ind., to Indiana Bridge Co.

100 tons, substation for Indiana General Service Co. at Muncie, Ind., to Indiana Bridge Co.

100 tons, foundry for Tool Steel Gear & Pinion Co., Cincinnati, to Indiana Bridge Co.

100 tons, 2-story addition to present 16-story Johnson building, Charlotte, N. C., through Hunkin-Conkey Construction Co., Cleveland, to Southern Engineering Co.
100 tons, factory, Sorenson Lane, Los Angeles, to Llewellyn Iron Works.
100 tons, store and office building, 1030 Wilson avenue, Chicago, to Wendnagel & Co.

## CONTRACTS PENDING

20,000 tons, Abraham Strauss department store addition, Brooklyn, N. Y., to be required eventually; 7000 to 8000 tons are scheduled for first unit.
14,000 tons, bridge between Louisville, Ky., and Jeffersonville, Ind.; bids July 6.
6000 tons, apartment, for Co-Operators Realty Co., between Forty-eighth and Forty-ninth streets, along East river, New York; bids out shortly.
3500 tons, plates and structurals, Detroit-Windsor, Canada tunnel; bids being taken.
3000 tons, office, building and other projects, Omaha, Nebr.
3000 tons, Stewart Park high school, Ludlow street, New York; bids asked.
2000 tons, highway bridge, Washington; bids asked.
1400 tons, 9-story bank for Lea, Higginson & Co., 39 Broad street, New York; bids asked through George A. Fuller Co.
1200 tons, highway bridge, Wisconsin.
1100 tons, tipples, coal washer buildings, etc., Pittsburgh Coal Co., Douglas Station and Jacob's Creek, Pa.; bids being taken.
1000 tons, plates and structurals, three scows for Marine Iron & Shipbuilding Co., Chicago.
1000 tons, mill, Spartansburg, S. C.; Lockwood Greene & Co., New York, engineers.
1000 tons, apartment, Philadelphia.
800 tons, court house, Bronx, New York; J. McWilliams, 55 West Forty-second street, general contractor.
800 to 1000 tons, school, Washington, Pa.; Edward B. Lee, Pittsburgh, architect. Bids expected in three to five months.
700 tons, 16-story apartment, 114 West Eighty-sixth street, New York; bids asked.
700 tons, New Amsterdam Casualty building, John street, New York; plans revised.
600 tons, Wesley Temple building, Minneapolis.
600 tons, building for St. Paul Fire & Marine Insurance Co., St. Paul.
500 tons, Chalfont hotel addition, Atlantic City, N. J.; alternate bids for electric arc welding and riveting asked.
500 tons, state bridges, New York; bids asked.
450 tons, clinker storage building, Pacific Coast Cement Co., Seattle; bids opened.
440 tons, school No. 143, Queens, N. Y.; general contract awarded.
430 tons, approximately, school No. 21, Brooklyn, N. Y.; general contract to C. J. Hoey.
430 tons, approximately, school No. 194, Brooklyn, N. Y.; general contract to C. J. Hoey.
350 tons, state highway bridge with double leaf bascule span over government canal at Menasha, Wis.; bids close June 29.
350 tons, apartment, Second street, Los Angeles, bids being received.
300 tons, postoffice garage, Pittsburgh; bids close June 30.
250 tons, apartment, Hollywood, Calif.; bids being received.
250 tons, theater, alterations, 157 East Eighty-sixth street, New York.
200 tons, approximately, Queens Reformed church, Queens, N. Y.
200 tons, bridge for state at Hartford, Vt.
200 tons, 9-story building, 19 East Sixty-fifth street, New York; bids asked.
170 to 265 tons, addition to Robert Dollar building, San Francisco; bids in.
170 tons, Niles Canyon bridge, Oakland, Calif.; bids July 16.
138 tons, apartment, South Hobart street, Los Angeles; bids being received.
Unstated tonnage, estimates from 2000 to 10,000 tons, widening bridges in grade elimination, Euclid avenue to East 140th street, Cleveland, for New York Central and Nickel Plate railroads; bids asked.
Unstated tonnage, plant and office building addition for Singer Mfg. Co., Elizabeth, N. J.; Holmes & Schmidt, Montclair, N. J., architects asking bids.
Unstated, tonnage, coal washing plant, for Youngstown Sheet & Tube Co., Nemacolin, Pa.; bids about to be asked.

The strength and ductility of steel is influenced by nickel which dissolves directly in the iron or ferrite.

# Concrete Bars

## Chicago Merchandise Mart of 6000 Tons Features Week of Activity—Inquiries Fewer

AWARDING of 6000 tons for the Merchandise Mart in Chicago made the past week one of the heaviest in awards this year. In addition to this letting, 2800 tons was awarded for a dock project in New York. Inquiries have decreased, but demand is expected to remain active during July, usually a dull month. Billet prices have been shaded sharply in the Chicago district.

REINFORCING BAR PRICES, PAGE 1683

**Chicago, June 26.**—With the closing of 6000 tons of rail steel reinforcing bars for the Chicago Merchandise Mart, the tonnage placed during the week was among the heaviest this year. About 550 tons of rail and billet bars were closed for the Horder warehouse, Chicago.

On several recent attractive jobs prices for billet bars were cut below the 2.30c minimum.

**Boston, June 26.**—Practically nothing was placed in the reinforcing bar market in the past week. Possibly 200 tons, in small lots, figured as the total for the week. Few projects are pending. The Washington bridge project, calling for nearly 1700 tons, still is being bid for, but tenders do not close for some ten days yet.

**Buffalo, June 26.**—Reinforcing bar works in this district are operating at their high point of the year, output being about 85 per cent. Some output is being stocked on account of delayed shipment orders but backlogs are good and high operation is being maintained in the belief that early July shipments will be large. No large inquiry is listed as new this week. Lots ranging up to 40 tons were booked last week, with the Buffalo truck delivery price upward from 2.40c.

**Pittsburgh, June 26.**—Concrete bar awards are few. Pennsylvania state road lettings hold much promise, and attractive quantities are expected to be purchased within the next week or two by road contractors. Prices hold at 1.85c to 1.90c.

**Cleveland, June 26.**—Slack building work in the territory is producing few concrete bar inquiries. No awards of size were closed during the week and inquiries were confined to lots of 50 to 75 tons each at the most. New billet steel bars hold at 1.85c, Cleveland or Pittsburgh mills, with rail steel at 1.75c, mill.

## Awards Compared

| | Tons |
|---|---|
| Awards this week | 12,428 |
| Awards last week | 6,607 |
| Awards two weeks ago | 4,627 |
| Awards this week in 1927 | 4,038 |
| Average weekly awards, May | 6,411 |
| Average weekly awards, 1928 | 7,623 |
| Total awards to date, 1927 | 140,423 |
| Total awards to date, 1928 | 190,578 |

## CONTRACTS PLACED

6000 tons, rail, Chicago Merchandise Mart, Chicago, to Inland Steel Co.
2800 tons, building for New York Dock Co., Brooklyn, N. Y., to Kalman Steel Co., through White Construction Co.
550 tons, Horder warehouse, Chicago, to Joseph T. Ryerson & Son Inc.
450 tons, Harmon sports arena, Chicago, to Inland Steel Co.
450 tons, rail steel, Hyde Park state bank building, Chicago, to unstated fabricator.
325 tons, 11-story Buccaneer hotel, Galveston, Tex., through Bellows-Macley Co., Dallas, Tex., to Truscon Steel Co., 58 tons of structural steel to Virginia Bridge & Iron.
300 tons, bridges in North Carolina, through Vincennes Bridge Co., to Dudley Bar Co.
250 tons, building for Bayonne Steel Ceiling Co., Long Island City, N. Y., to Truscon Steel Co.
225 tons, loft building, Maple street, Los Angeles, to unnamed interest.
200 tons, Weimen storage building, Elizabeth, N. J., to Joseph T. Ryerson & Son Inc.
150 tons, bridges in Tennessee, through Lebanon Bridge Co., to Dudley Bar Co.
150 tons, billet steel, bridge at Courtland, Va., through Harrison-Wright, to O. Z. Wrenn & Co.
150 tons, Sacred Heart academy, Chicago, to Barton Spider-Web System Inc.
125 tons, apartment, Sherwin avenue, Chicago, to Concrete Engineering Co.
120 tons, bridges in South Carolina, through H. E. Ragsdale, to Dudley Bar Co.
120 tons, Cache Creek bridge, Tulare county, Calif., to unnamed interest.
107 tons, rail steel, waterworks, Kingston, N. C., through Boyd & Golorth, to O. Z. Wrenn & Co.
106 tons, storm sewer in Birmingham, Ala., through E. H. Reeder & Co., to Dudley Bar Co.
100 tons, Carmichael's school, Carmichael's, Pa., to Truscon Steel Co.
100 tons, bakery building, Paterson, N. J. to Igoe Bros.
100 tons, bridges in Georgia, through H. E. Ragsdale, to Dudley Bar Co.

## CONTRACTS PENDING

2288 tons, drainage improvement district No. 26, Los Angeles; bids in July 16.
300 tons, James Madison school, Seattle; bids in.
300 tons, technical school building, Fall River, Mass.
260 tons, post office building, Long Island City, N. Y.
200 tons, state road work in Buck's, Elk, Indiana, Venango and Washington counties, Pennsylvania; bids being taken.
160 tons, mesh, for Belvidere Belfast highway, N. Y.; Aldred & O'Reilly, Lockport, N. Y., low bidders.
140 tons, Bridgeport Post building, Bridgeport, Conn.
114 tons, Niles Canyon bridge, Oakland, Calif.; bids in July 16.

100 tons, postoffice garage, Pittsburgh; bids close June 30.
100 tons, high school, Altoona, Pa.; bids being taken.
100 tons, Girl's cottage, Morganza, Pa.; bids being taken.
100 tons, junior and senior high school, Masontown, Pa.; bids being taken.

## Chicago at 80 Per Cent

Chicago, June 26.—With contraction of open-hearth output, the steelworks operating rate is about 80 per cent. No change has been shown during the week in steelworks blast furnace operations. The leading interest has 18 of its 27 steelworks furnaces active. Twenty-six of the 36 steelworks furnaces in the district are blowing. Pig iron melt is being increased, while scrap consumption is slightly lower.

## Canadian Mills Full

Toronto, Ont., June 26.—Canadian steel mills are operating practically at capacity. The rail mills at Sault Ste. Marie, Ont., and Sydney, N. S., have enough orders to keep going thirty or sixty days longer. Other departments of both the Dominion Iron & Steel Co. and the Algoma Steel Corp. report operations highest since 1920.

## Ship More Enamel Ware

Washington, June 26.—Shipments of enameled sanitary ware in May gained over April, 125,370 baths, 140,974 lavatories and 143,485 sinks being shipped in May as compared with 105,718, 124,027 and 125,479 respectively in April, according to reports of 22 manufacturers to the department of commerce.

## Hoist Orders Increase

New York, June 26.—Members of the Electric Hoist Manufacturers' association report that the number of hoists placed in May increased 17.25 per cent, as compared with the previous month, and the value of such orders 3.3059 per cent. Shipments were 0.6387 per cent larger than in April.

## Supply Houses Merge

Pittsburgh, June 26.—Stockholders of the Frick & Lindsay Co. and the Frick-Reid Supply Co. yesterday approved a merger of the two companies. The Jones & Laughlin Steel Corp. holds a majority of the common stock of the merged companies.

## Complaint to Go Over

Washington, June 26.—It is understood on good authority today there is practically no chance that the federal trade commission will take definite action on the Bethlehem Steel Co. merger complaint before the commission adjourns for the summer.

## Speer, Mathias Resign

Pittsburgh, June 26.—J. Ramsey Speer, president, and D. L. Mathias, advertising manager, of the Mackintosh-Hemphill Co., have resigned.

# Rails, Cars

**Activity in Railroad Equipment and Track Materials Easing Off —Canadian Road Plans Program**

WITH sales of but 1000 tons of rails, and 1500 tons of light rails, 2000 tons of track accessories and a few cars in the Chicago district, the railroad market displays further signs of lessened activity. Chicago district rail mills continue about 80 per cent, with car shop operations about 60 to 65 per cent. Canadian National plans a program involving about 160,000 tons of rails.

RAILROAD TRACK PRICES, PAGE 1864

**Chicago, June 26.**—Sales of track fastenings are active, particularly in spikes and track bolts. Angle bars and tie plates were in slightly less demand during the week. Sales totaled over 2000 tons. Operations are keeping at a good rate for tie plates and railroad spikes but are somewhat lighter for track bolts and angle bars.

Rail mill operations are continuing at 80 per cent for the district inasmuch as mills have several weeks' backlogs. Several miscellaneous lots of rails were sold during the week, totaling slightly over 1000 tons. Buying was active in light rails, the tonnage totaling about 1500, including one contract order.

It is indicated that about 400 cars of the recent Erie railroad equipment order will be built in western car shops. One car shop in the district is operating practically at capacity and several others are going at a good rate. The average operations are estimated to be 60 to 65 per cent. Most of the shops have in hand all of their specifications for the car orders placed this year.

**New York, June 26.**—With specifications being revised on 1000 freight cars for Seaboard Air line it appears June may fall under the May total with 1961 cars placed and 250 gondola bodies for Rock Island the only sizable inquiry on which action may be taken before July. Approximately 1500 domestic freight cars are pending and 337 passenger cars, the same as last week.

**Pittsburgh, June 26.**—Light rail orders are scarce, confined to scattered purchases of single carloads. The price in each case is $36, rerollers gathering in tonnage wherever they can at their $34 price.

Track accessory buyers taking small lots keep up a steady rain of orders upon the sellers, these supporting a 70 per cent operating schedule among the spike and tie plate makers. Large orders are withheld, no action having been taken as yet by the Pennsylvania or other roads on third quarter requirements. Spikes are held at 2.80c, tie plate at 2.25c.

**Toronto, Ont., June 26.**—Rails recently booked by the Algoma Steel Corp. from the Canadian Pacific railroad totaled 25,000 tons, and were accompanied by tie plate orders. Canadian National railway plans a $25,000,000 improvement program. Requirements include 160,000 tons of rails, to be laid on the Atlantic, central and western regions and the Grand Trunk Western lines.

### CAR ORDERS PLACED

Chicago, Milwaukee, St. Paul & Pacific, two heavy flat cars, to Standard Steel Car Co.
Missouri-Kansas-Texas, ten dump cars, to Western Wheeled Scraper Co.

#### LOCOMOTIVE ORDERS PLACED

Cleveland Union Terminals Co., 20 electric locomotives, to General Electric Co. Inquiry was for 25, 150-ton electric locomotives for delivery before January, 1930.
Missouri Pacific, five locomotives, to American Locomotive Co.
Unstated railroad in Salvador, four locomotives, to Baldwin Locomotive Works.

## Steel Barrel Production Continues Increase

Washington, June 26.—Production of steel barrels in May totaled 696,281 units, the heaviest output since the department of commerce originated such data in 1924. Shipments also were at a high point but unfilled orders for delivery within 30 days decreased. Following are data as prepared by the department of commerce:

| 1927 | Production | Shipments | Unfilled orders for delivery within 30 days | Unfilled orders for delivery beyond 30 days |
|---|---|---|---|---|
| May | 588,077 | 575,712 | 250,029 | 947,865 |
| June | 594,782 | 605,123 | 232,468 | 966,371 |
| July | 578,223 | 576,602 | 308,789 | 1,037,899 |
| Aug. | 615,152 | 610,454 | 244,518 | 862,086 |
| Sept. | 521,899 | 525,374 | 235,181 | 889,256 |
| Oct. | 578,408 | 572,893 | 211,665 | 788,894 |
| Nov. | 500,909 | 497,345 | 182,065 | 633,724 |
| Dec. | 444,227 | 454,638 | 221,897 | 1,086,468 |
| 1928 | | | | |
| Jan. | 475,906 | 474,159 | 241,145 | 1,110,652 |
| Feb. | 518,944 | 514,362 | 297,889 | 1,119,738 |
| Mar. | 636,855 | 644,521 | 304,043 | 1,039,540 |
| Apr. | 667,827 | 661,949 | 357,131 | 919,863 |
| May | 696,281 | 694,843 | 324,549 | 932,568 |

## Railroad Briefs Filed

Washington, June 26.—Briefs were filed today with the interstate commerce commission in connection with the application of the Pittsburgh, Lisbon & Western railroad to extend its lines, on behalf of the railroad by the Pittsburgh Coal Co. and in opposition by the Baltimore & Ohio railroad.

# Strip

**Third Quarter Contracts Renewed from Second—Some Price Shading Reported**

THIRD quarter contracts are being taken at the same level as second quarter. Consumers indicate needs for that delivery will be about the same as in second quarter. Nail demand lacks volume and warehouses find turnover is small. Present prices are being resisted and users are specifying out lower-priced tonnages. Barbed wire and fencing is in good demand.

STRIP PRICES, PAGE 1684

**Chicago, June 26.**—Hot rolled strip steel producers deny reports that lower prices in the Detroit district have lowered quotations here for the smaller widths of hot rolled material. Mills state that Chicago quotations are holding at the levels of the past two months. Operations have been considerably reduced in the past 15 days, owing to slumps in several days, owing to lessened demand.

Demand for cold rolled strip, on the other hand, has fallen off sharply in most lines, due largely to seasonal conditions. Quotations are on the basis of 2.75c to 2.90c, Cleveland, in orders of over three tons.

**New York, June 26.**—Many hot rolled strip steel contracts have been renewed through third quarter. Mills have reflected a keen disposition to get business first and consider price secondary. One feature is that to some extent the differentials between 3 to 6 inches wide and under 3 inches wide have been disregarded. The price on less than 3 inches wide is 2.10c, base, Pittsburgh, and on 3 to 6 inches 2.00c, base, Pittsburgh, but in some cases widths under 3 inches have been sold at 2.00c and even lower. The usual range on 6 to 12 inches wide is 1.75 to 1.85c, base, Pittsburgh.

**Pittsburgh, June 26.**—With most strip producers, business has been for the most part evenly divided for some time, but last week cold strip business predominated. Some producers have gone into Michigan for large tonnage business at $2 under the market, but the tendency here has been to adhere to the 3.00c to 3.15c base (2.75c to 2.90c for three tons or more). On hot strip inquiries, makers have their eyes on the net rather than the base price. The tendency, however, is to maintain a 1.90c minimum on 6 to 12-inch material, and in some cases as high as 2.00c has been received. On 3 to 6-inch material quotations of 2.00c to 2.10c are current and one maker obtained 2.15c on a quantity of 6-inch this past week. Narrow hoop and band stock is held at 2.20c minimum. Business is much diversified, one interest reporting 75 orders in one mail yesterday, from 35 different customers. This producer states aggregate tonnage of hot and cold strip orders for June to date is ahead of May to the same date by 600 tons.

**Cleveland, June 26.**—Third quarter contract prices have been named on hot strip at 1.90c, Pittsburgh, for 6 to 12-inch, 2.00c for 3 to 6-inch and 2.10c for under 3-inch, some interests believe that these levels will apply only to spot business and that contract tonnage will continue at 1.75c for 6 to 12-inch.

# Cold Finished Steel

**Lower Prices Do Not Induce Larger Buying at Once**

COLD FINISHED PRICES, PAGE 1683

**Pittsburgh, June 26.**—The recently announced 2.20c for third quarter by cold bar finishers has been revised downward by $2. Commencing June 20, contracts for third quarter have been taken at 2.10c. This started with large tonnage consumers and spread to smaller buyers. Specifications are being received steadily and in attractive tonnages, automotive consumption being well sustained. Shipments this month are within a few tons of the same date last month. Cold finishing operations are 60 to 70 per cent.

**Chicago, June 26.**—The reduced price of cold finished steel does not appear to be stimulating third quarter buying, and producers expect some hesitancy naturally to follow a change in quotations. Operations have not declined materially. The new quotation is on the basis of 2.10c, Chicago.

**Detroit, June 26.**—Cold finished bars are being booked for third quarter at 2.10c, Chicago, the $2 per ton recession last week from the second quarter level entailing a revision of some third quarter contracts already taken at 2.20c. Specifications for July shipment show only a moderate decline, one that is less than seasonal, from the June level.

**Cleveland, June 26.**—Heavier business in the past week was reported by several cold drawn bar sellers in this district. Releases against automotive commitments, especially for shipment after July 1 have been numerous in the week. Screw machine products manufacturers are maintaining a good demand. Roadbuilding equipment manufacturers are specifying heavily but are making few new demands. Several heavy releases for immediate shipment have been received by mills represented in this district, involving over 1000 tons each. The new prices of 2.10c, Pittsburgh, 2.15c, Cleveland, it is reported, have had little effect on the development of further business.

# Wire

**Demand Slow and Prices Are Resisted by Buyers—Farm Buying Fairly Good**

LOWER prices appear to have been made in the Detroit district to obtain a backlog but this has not affected other markets. Some waiving of differentials is reported in third quarter contracts. Operations of strip mills have been reduced recently. Buying is from a wide variety of consumers and one large producer finds June has brought more tonnage than May.

WIRE PRICES, PAGE 1684

**Pittsburgh, June 26.**—Third quarter wire contracts are being extended on the same basis as second quarter, 2.50c. Contracts are fairly numerous and represent a large aggregate tonnage. Many consumers apparently contemplate the same rate during third quarter as in the second. Nail business is less attractive. Jobbers are not turning over their stocks as rapidly as they expected. While $2.65 still is quoted, buyers are resisting that figure and are still drawing against lower priced contracts. Wire mill operations are 35 to 50 per cent.

**Chicago, June 26.**—Barbed wire and woven fencing are in heavier demand. Manufacturers' wire is leading among mill products. June specifications and shipments were better than indicated earlier in the month. Some third quarter contracts for wire nails have been closed at $2.70, Chicago or western mills, and while nails are moving better than in early spring, demand is quiet. Bright plain wire is 2.55c.

**Cleveland, June 26.**—Booking of third quarter nail and wire contracts has been light. Mills reaffirm 2.50c, Cleveland, for plain wire, and $2.65 per 100-pound keg on wire nails for third quarter. Competition from jobbers stocked with low priced nails is tending to weaken that market, although no open break in quotations has appeared.

# Nonferrous Metals

**Break in Tin Is Outstanding Event of Market During Past Week—Prices on Copper, Lead and Zinc Hold Despite Limited Buying**

## Prices of the Week, Cents a Pound

| | Copper—Electro delivered | Copper—Lake delivered | Copper—Casting refinery | Straits Tin—New York Spot | Straits Tin—New York Futures | Lead New York | Lead East St. Louis | Zinc St. Louis | 98-99% Aluminum | Spot Antimony | Ingot Nickel |
|---|---|---|---|---|---|---|---|---|---|---|---|
| June 20 | 14.75 | 14.82½ | 14.50 | 46.75 | 46.75 | 5.30 | 6.15 | 6.15 | 23.90 | 9.50 | 35.00 |
| June 21 | 14.75 | 14.82½ | 14.50 | 45.87½ | 45.87½ | 6.30 | 6.15 | 6.15 | 23.90 | 9.50 | 35.00 |
| June 22 | 14.75 | 14.82½ | 14.50 | 45.87½ | 45.75 | 6.30 | 6.15 | 6.15 | 23.90 | 9.50 | 35.00 |
| June 25 | 14.75 | 14.82½ | 14.50 | 46.37½ | 46.25 | 6.30 | 6.15 | 6.15 | 23.90 | 9.55 | 35.00 |
| June 26 | 14.75 | 14.82½ | 14.50 | 46.25 | 46.00 | 6.30 | 6.15 | 6.22½ | 23.90 | 9.62½ | 35.00 |

NEW YORK, June 26.—A break in the tin market almost to 45.00c a pound was the outstanding event in the nonferrous market so far as prices were concerned during the past week. Copper, lead, zinc and aluminum were unchanged, with not much new buying but with active shipments on old orders.

Brass and copper mills are entering the summer season with more than the usual amount of business on their books. Building continues a good source of business. Various other lines have placed good orders with the mills but in the past week or two new buying has been light. Prices all through the list of mill products are unchanged.

**Copper.**—Domestic and export business has been light lately, after a period in which export buying held up though users in this country had become well satisfied. Needs are well covered for July but an occasional inquiry, domestic and export, still comes in, and is not always readily filled. August also is well covered. Users still are making pressure for shipments as rapidly as possible. Prices are unchanged but firm.

**Tin**—The price fell to 45.62½c, perhaps a shade less on one or two small sales, and then recovered but remained in an uncertain trend. Prices have fallen about 4 cents this month to the lowest in four years. Supplies still are coming out freely and on some days lately even after large buying by users, prices have immediately sagged still lower. There is a little premium now on spot again, because it is well held. Buying has ranged from spot to January arrival.

The trade is interested in reorganization of the New York metal exchange by which it is hoped to make tin trading active there, with the public included, as in rubber and cotton and other commodities. The reorganized exchange, it is asserted, would give users of the metal better opportunity to hedge their positions.

**Zinc**—Prime western has remained entirely unchanged, with June at 6.15c, East St. Louis, and July ranging up to 6.20c. Light buying has been done for early shipment but not a great deal for July. The ore market is steady, at $40 a ton. High grade metal is unchanged and moving well.

**Lead**—Buying has been light, and mostly for prompt shipment. Prices are steady—*Daily Metal Trade.*

## Valley Steelmaking Rate Up Slightly

Youngstown, O., June 26.—Some improvement appears this week in valley steelworks operations. One independent open hearth has been added, making 35 of 53 on. Fifteen independent sheet units also have been added, making 113 running out of a total of 127, against 98 last week. Strip operations continue at capacity, while bar mills are 60 per cent active among independents and 75 per cent with Carnegie Steel Co. Tin mill activities are 80 per cent with Steel corporation units and 75 per cent with independents. Out of 20 independent tube units, 12 are active, unchanged from last week.

## Mill Products

**Base prices cents per pound f.o.b. mill**

| | |
|---|---|
| **SHEETS** | |
| Yellow brass (high) | 19.25 |
| Copper, hot rolled | 23.50 |
| Lead, full sheets (cut ¼c more) | 10.00 |
| Zinc (100-pound base) | 9.25 |
| Aluminum, flat sheets, up to 10 gage, 3" to 72" wide | 31.30 |
| **SEAMLESS TUBES** | |
| Yellow brass (high) | 24.12½ |
| Copper | 25.00 |
| **RODS** | |
| Yellow brass (high, full turning) | 17.00 |
| Naval brass | 19.75 |
| **WIRE** | |
| Copper, car lots | 16.37½ |
| Yellow brass (high) | 19.75 |

## Old Metals

**Dealers' buying prices, cents per pound**

| | |
|---|---|
| **HEAVY RED BRASS** | |
| New York | 9.50 to 9.75 |
| Chicago | 9.50 to 10.00 |
| Cleveland | 10.00 to 10.25 |
| **HEAVY YELLOW BRASS** | |
| Chicago | 7.00 to 7.25 |
| Cleveland | 7.50 to 7.75 |
| **ZINC** | |
| New York | 3.50 |
| Cleveland | 3.25 to 3.50 |
| **HEAVY COPPER AND WIRE** | |
| New York | 12.25 |
| Boston | 11.75 to 12.25 |
| Chicago | 11.50 to 11.75 |
| Cleveland | 12.00 to 12.25 |
| **RED BRASS BORINGS** | |
| New York | 8.50 to 9.00 |
| **YELLOW BRASS TUBING** | |
| Cleveland | 7.50 to 7.75 |
| **LIGHT COPPER** | |
| New York | 10.75 |
| Chicago | 9.50 to 9.75 |
| Cleveland | 10.75 to 11.00 |
| **LIGHT BRASS** | |
| Boston | 5.75 to 6.00 |
| Chicago | 6.75 to 7.00 |
| Cleveland | 5.75 to 6.00 |
| **ALUMINUM** | |
| Clippings, Cleveland | 17.00 to 17.25 |
| Borings, Cleveland | 8.00 to 8.25 |
| Cast, Cleveland | 12.00 to 12.25 |
| Cast, Boston | 10.50 to 11.00 |

## Secondary Metals

| | |
|---|---|
| Remelt Aluminum No. 12 | 16.50 to 17.00 |
| Brass ingot, 85-5-5-5 | 12.62½ to 12.87½ |

## Coke By-Products

**Toluol Supplies Are Short—New Sulphate Prices Expected**

**New York, June 26.**—Good demand prevails for benzol and toluol, with sellers having difficulty obtaining suffiicient supplies of toluol to meet current requirements. Prices are strong but unchanged. Commercial xylol and solvent naphtha continue to move only moderately, with prices easy, but also unchanged. Phenol is featureless.

New contract prices on sulphate of ammonia are expected to be announced by leading sellers next week in anticipation of seasonal buying by the fertilizer trade. Meanwhile, the market is dull, with domestic prices holding nominally at $2.20, delivered, and export prices at $2.20 to $2.25, port, for material in double bags.

Demand for naphthalene is being maintained, with prices steady.

## Coke Oven By-Products

**Per Gallon at Producers' Plants in Tank Lots**

| | Spot | Contracts |
|---|---|---|
| Pure benzol | $0.22 | ..... |
| 90 per cent benzol | 0.22 | ..... |
| Toluol | 0.35 | ..... |
| Solvent naphtha | 0.30 | ..... |
| Commercial xylol | 0.30 | ..... |
| Phenol | 0.17 | ..... |

**Per Pound at Producers' Plants**

| | |
|---|---|
| Naphthalene flakes | 0.05½ to 0.06½ |
| Naphthalene balls | 0.06½ to 0.07½ |

**Per 100 Pounds Delivered**

| | |
|---|---|
| Sulphate of ammonia | $2.20 |

## Quicksilver Is Quiet

New York, June 26.—Quicksilver is quiet, but with some business going at $122.50 to $124.

# Warehouse

**June Sales Holding at Better Rate Than Expected in Some Districts—Foreign Iron Less Active in New England—Prices Steady**

SALES from iron and steel warehouses in June have been better than many jobbers expected, Pittsburgh being a notable exception. St. Louis demand has broken a lull of several weeks. Prices during the week reflected no further weakness following the recent downward revisions of sheet quotations.

Demand in the New York metropolitan warehouse district is moderately well maintained. While the rate of new business is somewhat short of that for May, it is fairly good considering the season. Resistance to some of the lower prices being done in Manhattan and Brooklyn on black and galvanized sheets is being shown in Jersey City-Newark territory, with a result that 4.50c to 4.70c may be quoted on galvanized in this latter territory and 3.80c to 4.00c on black.

While foreign iron is still competing with domestic in Boston, consumers in this district are showing less interest in the foreign product, which has resulted in a somewhat better feeling for coming months.

Iron and steel warehouse sales at Buffalo involve larger individual orders. Building materials are moving freely. June business will be close to the largest of the year if this week maintains former averages of the month.

Pittsburgh jobbers have been rather disappointed at the buying rate. Bar prices are firm at 2.90c, plates and shapes at 3.00c. Ornamental iron workers are buying sparingly.

Sales totals for June in the Cleveland warehouse district will equal or exceed May, according to leading jobbers. Shading of prices has been confined mostly to large lots of sheets. Sheets out of stock have been reduced $2 a ton during the week, galvanized now being 4.40c, Cleveland, and black 3.65c.

Steel warehouses in the Chicago district report a good June demand, approximately equal to May. Buying is particularly active in lighter material. Blue annealed sheets are moving well but black and galvanized material is more quiet.

The volume of business done by Detroit iron and steel warehouses holds remarkably steady. The building industry is a slightly better buyer while the railroads and automotive users maintain a steady volume of orders. Prices are unchanged.

St. Louis warehousemen report a breaking up of the period of dullness which had prevailed for four or five weeks. Buying, while not in great volume, has picked up in virtually all

(*Concluded on Page* 1699)

## Warehouse Quotations in Cents Per Pound at Leading Market Centers

### STEEL BARS

| | |
|---|---|
| Baltimore | 3.10c |
| Boston | 3.265c |
| Buffalo | 3.30c |
| Chicago | 3.00c |
| Cincinnati | 3.30c |
| Cleveland | 3.00c |
| Detroit | 3.00c |
| Ft. Worth | 3.75c |
| Houston | 3.00c |
| Los Angeles | 3.30c |
| New York†† | 3.25c |
| Philadelphia* | 2.60c |
| Pittsburgh | 2.90c |
| Portland | 2.50c |
| San Francisco | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.15c |
| St. Paul | 3.25c |
| Tulsa | 3.75c to 4.06c |

### IRON BARS

| | |
|---|---|
| Baltimore | 3.10c |
| Boston | 3.265c |
| Buffalo | 3.30c |
| Chicago | 3.00c |
| Cincinnati | 3.30c |
| Detroit | 3.00c |
| Ft. Worth | 3.75c |
| New York† | 2.80c to 3.24c |
| Philadelphia* | 2.60c |
| St. Louis | 3.15c |
| Tulsa | 3.75c to 4.06c |

### REINFORCING BARS

| | |
|---|---|
| Baltimore | 3.31c |
| Boston | 3.265c to 3.50c |
| Buffalo | 2.75c |
| Cincinnati | 3.15c |
| Cleveland | 2.20c |
| Detroit | 3.00c |
| Ft. Worth | 3.50c |
| Houston | 3.00c |
| Los Angeles cl. | 2.65c |
| Los Angeles lcl. | 3.00c |
| New York | 2.95c to 3.10c |
| Philadelphia | 2.30c to 2.80c |
| Pittsburgh | 2.75c to 3.175c |
| San Francisco cl. | 2.85c |
| San Francisco lcl. | 3.10c |
| Seattle | 3.00c |
| St. Louis | 3.15c |
| Tulsa | 3.75c to 4.00c |
| Youngstown | 2.30c to 2.60c |

### STRUCTURAL SHAPES

| | |
|---|---|
| Baltimore | 3.10c |
| Boston | 3.365c |
| Buffalo | 3.40c |
| Chicago | 3.10c |
| Cincinnati | 3.40c |
| Cleveland | 3.00c |
| Detroit | 3.10c |
| Ft. Worth | 4.25c |
| Houston | 3.25c |
| Los Angeles | 3.30c |
| New York† | 3.25c to 3.30c |
| Philadelphia | 2.40c to 3.00c |
| Pittsburgh | 3.00c |
| Portland | 2.90c |
| San Francisco | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.25c |
| St. Paul | 3.35c |
| Tulsa | 3.75c to 4.16c |

### PLATES

| | |
|---|---|
| Baltimore | 3.10c |
| Boston | 3.365c |
| Buffalo | 3.40c |
| Chicago | 3.10c |
| Cincinnati | 3.40c |
| Cleveland, ¼-in. and thicker | 3.00c |
| Cleve., 3/16-in. | 3.20c |
| Detroit | 3.10c |
| Detroit, 3/16-in. | 3.30c |
| Ft. Worth | 4.00c |
| Houston | 3.00c |
| Los Angeles | 3.30c |
| New York† | 3.30c |
| New York† (floor) | 5.05c to 5.10c |
| Philadelphia | 2.40c to 3.00c |
| Phila., 3/16-in. | 2.60c to 3.20c |
| Pittsburgh | 3.00c |
| Portland | 3.00c |
| San Francisco | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.25c |
| St. Paul | 3.35c |
| Tulsa | 3.75c to 4.16c |

### No. 10 BLUE ANNEALED

| | |
|---|---|
| Baltimore | 3.45c |
| Boston, 3/16-in. | 3.915c |
| Buffalo | 3.70c |
| Chicago, to 40 in. | 3.50c |
| Chicago, over 40 in. | 3.60c |
| Cincinnati | 3.60c |
| Cleveland | 3.25c |
| Detroit | 3.50c |
| Ft. Worth | 4.70c |
| Houston | 3.90c |
| Los Angeles | 4.00c |
| New York | 3.90c |
| Portland | 3.75c |
| Philadelphia*† | 3.15c |
| Pittsburgh** | 3.00c to 3.10c |
| San Francisco | 3.75c |
| Seattle | 4.00c |
| St. Louis | 3.60c |
| St. Paul | 3.75c |
| Tulsa | 4.20c to 4.56c |

### No. 24 BLACK SHEETS

| | |
|---|---|
| Baltimore | 3.30c to 4.00c |
| Boston | 5.00c |
| Buffalo | 4.20c |
| Chicago | 3.95c |
| Cincinnati | 4.05c |
| Cleveland | 3.65c |
| Detroit | 4.10c |
| Ft. Worth | 4.70c |
| Los Angeles | 4.90c |
| New York | 3.80c |
| Philadelphia*† | 3.85c |
| Pittsburgh‡ | 3.55c |
| Portland | 4.90c |
| San Francisco | 4.95c |
| Seattle | 5.00c |
| St. Louis | 4.25c |
| St. Paul | 3.95c |
| Tulsa | 4.75c |

### No. 24 GALVANIZED SHEETS

| | |
|---|---|
| Baltimore | 4.15c to 4.75c |
| Boston | 5.85c |
| Buffalo | 4.70c to 5.05c |
| Chicago | 4.80c |
| Cincinnati | 4.90c |
| Cleveland | 4.40c |
| Detroit | 4.90c |
| Ft. Worth | 5.50c |
| Houston | 5.30c |
| Los Angeles | 5.30c |
| New York | 4.50c |
| Philadelphia *† | 4.60c |
| Pittsburgh‡ | 4.40c |
| Portland | 5.50c |
| San Francisco | 5.50c |
| Seattle | 5.75c |
| St. Louis | 5.10c |
| St. Paul | 4.90c |
| Tulsa | 5.55c |

### BANDS

| | |
|---|---|
| Baltimore | 3.85c |
| Boston | 4.015c to 5.00c |
| Buffalo | 4.05c |
| Chicago | 3.65c |
| Cincinnati | 3.95c |
| Cleveland | 3.65c |
| Detroit | 3.65c |
| Ft. Worth | 4.40c |
| Houston | 3.65c |
| Los Angeles | 4.15c |
| New York† | 4.00c |
| Philadelphia* | 3.25c |
| Pittsburgh | 3.60c |
| Portland | 3.75c |
| San Francisco | 4.00c |
| Seattle | 4.00c |
| St. Paul | 3.90c |
| Tulsa | 4.71c |

### HOOPS

| | |
|---|---|
| Baltimore | 4.00c |
| Boston | 5.50c to 6.00c |
| Buffalo | 4.05c |
| Chicago | 4.15c |
| Cincinnati | 4.40c |
| Cleveland | 3.65c |
| Detroit | 4.15c |
| New York† | 4.50c |
| Philadelphia* | 3.50c |
| Pittsburgh | 4.50c |
| Seattle | 5.00c |
| St. Paul | 4.40c |

### COLD FINISHED STEEL

| | Rounds, hexagons, squares | Flats, squares |
|---|---|---|
| Baltimore | 3.35c | 3.85c |
| Boston | 3.45c | 3.95c |
| Buffalo | 3.95c | 4.45c |
| Chicago | 3.60c | 4.10c |
| Cincinnati | 3.85c | 4.35c |
| Cleveland | 3.65c | 4.15c |
| Detroit | 3.85c | 4.35c |
| Los Angeles (a) | 4.60c | ..... |
| New York | 3.40c | 3.90c |
| Philadelphia* | 3.35c | 3.85c |
| Pittsburgh | 3.60c | 4.10c |
| Portland (a) | 4.75c | ..... |
| San Fran. (a) | 4.25c | ..... |
| Seattle (a) | 5.00c | ..... |
| St. Paul (a) | 3.85c | ..... |
| Tulsa | 4.66c | 5.16c |

(a) Rounds only.

### COLD ROLLED STRIP

| | |
|---|---|
| Boston, 0.100-inch, 500 pound lots | 5.30c |
| Buffalo | 5.85c |
| Chicago (b) | 6.10c |
| Cincinnati | 7.15c |
| Cleveland (b) | 5.95c |
| Detroit | 5.80c |
| New York | 5.15c |
| Philadelphia (c) | 5.00c |

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

### SWEDISH IRON AND STEEL

New York duty paid

| | |
|---|---|
| Hollow drill steel | 14.00c |
| Iron bars, rounds | 6.25c |
| Flats and Squares | |
| Baltimore, New York, Phila. | 6.60c |

*Plus quantity differentials. †Minus quantity differentials. ††Domestic bars. ‡10 to 24 bundles. **25 or more sheets. *†50 or more bundles.

# Pacific Coast

**Spokane Building Takes Largest Tonnage—Los Angeles Buys Much Pipe**

WHILE most trading on the Pacific coast has been in small lots, a few tonnages have been closed involving more than usual. An office building in Spokane has been awarded, the largest in several weeks. Plates for a carferry for the Santa Fe railroad involve 800 tons and Los Angeles has bought 2000 tons of cast iron pipe. Prices are unchanged.

**San Francisco, June 23.**—(By Air Mail)—Trading in iron and steel products on the Pacific coast during the past week was by no means heavy and indications point to lessened demand during the next month or two. Consumers, generally, are content to buy material only for immediate requirements and little third quarter purchasing has been done.

Awards of the week included 800 tons of plates and shapes for a carfloat for the Santa Fe railroad at San Francisco, booked by the Moore Drydock Co. and the placing of over 2000 tons of cast iron pipe by Los Angeles. Prices continue unchanged with weakness displayed in plates and reinforcing steel bars.

### Pig Iron and Coke

Little of importance has transpired in pig iron and coke the past two months, sales and inquiries being confined to unimportant tonnages.

## Coast Pig Iron Prices

| | |
|---|---|
| Utah basic | $25.00 to 26.00 |
| Utah foundry | 25.00 to 26.00 |
| *German | 24.25 |
| *Indian | 24.00 to 25.00 |
| *Dutch | 24.50 |

*C.i.f. duty paid.

Quiet in the oilfields in southern California has affected the rate of operations among jobbing foundries in that section. Prices are unchanged.

### Bars, Plates and Shapes

Concrete bar awards this week totaled 1114 tons, bringing the aggregate for the year to 48,759 tons, compared with 25,150 tons for the corresponding period in 1927. Among the larger lettings was 225 tons for a loft building on Maple street, Los Angeles. Bids will be opened July 16 for 114 tons for the Niles Canyon bridge at Oakland, Calif., and on 2300 tons for Drainage improvement district No. 26 at Los Angeles. The range on out-of-stock material in the bay district continues unchanged and 1.80c appears to be the bottom, with some business going at 2.00c.

Little new business is before plate fabricators for figures and awards this week totaled less than 600 tons. Approximately 575 tons of plates were involved in the carfloat for the Santa Fe railroad, placed with the Moore Drydock Co. Awards so far this year total 16,341 tons, compared with 45,072 tons for the same period a year ago. The only pending inquiry of importance involves 100 tons of 3/16-inch material for a riveted pipe line at Sacramento, Calif., bids on which open June 28. Prices are weak and 2.25c to 2.30c represents the present range.

Several fair sized structural awards were reported this week. A factory at Vernon, Calif., calling for 900 tons and an apartment requiring 470 tons in Los Angeles were booked by the Llewellyn Iron Works and the Baker Iron Works, respectively. To date this year 77,597 tons has been placed, compared with 79,328 tons for the corresponding period in 1927. Pending business exceeds 13,000 tons, new inquiries calling for 450 tons for a clinker storage building for the Pacific Coast Cement Co. at Seattle and 350 tons for an apartment on Gramercy place, Los Angeles. Plain domestic material remains unchanged and firm at 2.35c c.i.f. coast ports.

### Other Finished Material

Cast iron pipe awards aggregated 2333 tons, bringing the total for the year to 43,565 tons, compared with 47,462 tons for the same period last year. Grinnell Co. secured 1260 tons and the American Cast Iron Pipe Co. took 884 tons pipe for Los Angeles. Pending business is light, less than 1100 tons being up for figures. C. G. Claussen & Co. Inc., quoting on French pipe, were low bidders on 300 tons for Burbank, Calif.

## Seattle Building Active

**Seattle, June 20.**—While mill representatives report iron and steel dull, jobbing houses are enjoying a fair volume of trade. Several large projects involving reinforcing and structurals have not been awarded but action will be announced in the near future.

The largest award for structurals in several weeks was obtained this week by officials of the Hofius Steel & Equipment Co., Seattle, 1800 tons for the Medical & Dental building, Spokane, general contract for which was taken by Rounds-Clist Co., Seattle, last month.

Derbon Construction Co., Seattle, at $285,935, and Winston Bros., Minneapolis, at $72,360, were the two bidders for the two units of the reclamation canal project near Milner, Idaho. Architects have been employed by the Seattle lighting department to prepare plans and specifications to house this municipal department. The structure will be four stories, 111 x 126 feet, and will cost nearly $1,000,000.

### Bars, Plates and Shapes

Mill prices of bars and shapes are firm at 2.35c although business is slack. Plates are weak and although 2.30c is being quoted by mill representatives, it is said that 2.25c can be done on desirable tonnages. Inquiry for plates is limited. Reinforcing material is about 2.20c.

Local steel mills are operating steadily, recent business consisting almost entirely of lots of 50 tons or less. The aggregate is considerable, however. No awards of more than 100 tons are reported this week. Pacific Coast Steel Co. took 50 tons for the substructure of the Queets river bridge. The same firm is reported to have been awarded 200 tons for the Von Herberg building, Sixth and Pine streets, Seattle, and 155 tons for the Spokane street bridge but the company denies that these contracts have actually been awarded. Seattle will receive bids July 6 for the Beacon hill tunnel which will involve about 700 tons of reinforcing.

Award of 1800 tons to Hofius Steel & Equipment Co., Seattle, for a building at Spokane, was the only structural job let this week. American Bridge Co. has the contract for fabricating 1125 tons involved in the Kettle Falls bridge, reported last week awarded to an unnamed interest. Pacific Coast Cement Co. has bids under consideration for furnishing considerable structural materials for its new plant here and awards are expected within a few days.

### Finished Materials

Wholesale jobbers report a fair turnover. Buying is about up to normal for this time of year. Prices are unchanged.

Westinghouse Electric & Mfg. Co. has the contract for furnishing two 7500-kilowatt turbines for the new plant of the Weyerhaeuser Timber Co., Longview, Wash. Additional awards for motors, transformers, etc., for the same project are expected shortly.

## Seek Standards Data on Shovels, Spades

Washington, June 26.—Preparatory to calling a conference of the standing committee on simplified practice recommendation No. 48, shovels, spades, and scoops, to consider the revision of reaffirmation of this recommendation, the division of simplified practice of the bureau of standards, has been requested by the chairman of the committee to initiate a survey among acceptors of the simplification to ascertain the extent to which the present standard has proved practicable and whether further eliminations can be advantageously effected.

## Shapes to Go from Mill to Site by Water

The structural steel for the Chicago Merchandise Mart, Chicago, which was awarded to Bethlehem Steel Co. June 19, will be rolled and fabricated at the Buffalo works of the Bethlehem company and will be shipped to the Chicago district in the Bethlehem company's own lake boats, it is understood. The tonnage of this structure, which has been known heretofore as the Marshall Field Merchandise Mart, has been estimated at from 45,000 to 60,000 tons, but fabricators who bid on the project state that 45,000 tons more nearly represents the actual figure.

A part of the tonnage may be unloaded from the boats at the Bethlehem company docks at Indiana Harbor, and considerable of the material can be unloaded directly at the site of the building, which will be over the Chicago & North Western railroad tracks adjacent to the Chicago river. Thus an unusually convenient arrangement is possible for unloading much of the structural material from the Bethlehem company's boats. Marshall Field & Co. some months ago acquired the air rights for erecting the structure above the Chicago & North Western tracks.

The steel was awarded through Graham, Anderson, Probst & White, Chicago, architects.

## Goes with Sharpsville

Pittsburgh, June 26.—George Buckwell, for eight years in charge of the Pittsburgh office of the M. A. Hanna Co., resigns July 1 to take charge of sales of pig iron, coke and by-products for the Sharpsville Furnace Co.

## Pig Iron Sales Light

(*Continued from Page* 1685)

cently bought 200 tons of southern. An automobile interest still is in the market for 4000 tons of silvery. A Cincinnati melter has bought 200 tons of southern foundry. One seller has disposed of 1000 tons in odd lots.

**Philadelphia, June 26.**—Eastern Pennsylvania furances continue to quote $20, base, nearest furnace, on foundry iron but in several instances this price has been cut slightly to meet delivered prices quoted consumers in this territory on foreign iron and on iron from other producing districts. Hence, $20 is not as strong as it was. Purchases last week included 750 tons by the Pusey & Jones Co., Wilmington, Del., and the Consolidated Machine Tool Corp.'s Wilmington plant. Several lots of 500 tons or smaller were closed. Reciprocal trading is more widespread in pig iron buying here. Contracts for 3000 to 4000 tons of low phos have been placed in the past week, mainly by middle western consumers.

**Chicago, June 26.**—Fewer large inquiries are before the pig iron market, but several important buyers are considering their third quarter and last half needs. The recent weakness in basic iron in the East is believed to be reflected in some hesitancy on the part of melters in this district, although $18, base, Chicago furnace, is steady. More third quarter tonnage has been placed than at the similar time a year ago, despite the absence of a well defined quarter's buying movement. Sales are being closed with little open negotiation or inquiry. Several sales of charcoal iron have been made at the base price of $24, furnace, but probably less tonnages is being used than a year ago.

Pig iron shipments are estimated at 15 to 20 per cent ahead of last June. Five hundred tons of silvery iron has been sold into western Michigan at the full schedule.

**St. Louis, June 26.**—Seasonal apathy prevails in pig iron. Sales continue light and inquiry for third quarter iron is disappointingly low. Competition is keen, and there have been additional reports of slight shading of list quotations. Offerings are liberal from all blast furnace interests which supply this territory. Chicago makers especially are endeavoring to place tonnage here. Sales reported totaled approximately 3000 tons, all foundry and malleable. Melters relying chiefly on the railroads for patronage report discouraging conditions. Not much improvement is looked for during the early summer.

**Birmingham, Ala., June 26.**—The reduction of 50 cents, to $16 for No. 2 foundry has brought about a little flush in pig iron business for third quarter delivery. Tonnage already booked will more than cover the probable make of the first 30 days. Local melt will show a slight falling off the first part of July but steady requirements should come back immediately.

**Toronto, Ont., June 26.**—Pig iron inquiry in the Canadian markets for third quarter is improving. While only about 5000 tons has been contracted for, inquiries total 5000 to 7000 tons. Melters do not appear in any hurry to place advance delivery contracts, and some have combination contracts spread between second and third quarter that will take care of needs for the next six weeks. Spot demand for foundry iron is holding at a satisfactory level, with orders ranging from 50 to 200 tons. Eight blast furnaces are blowing in Canada, having an output of 63 per cent of all the furnaces in Canada.

## Warehouse Sales Steady

(*Concluded from Page* 1697)

departments, and the outlook is more cheerful. In spite of unfavorable weather, improvement is noted in demand for building materials. In the immediate past there has been more life to demand from southern cotton compresses and cottonseed mills, preparations being under way for handling the new crop.

Jobbing demand at Philadelphia reflects an unusual condition in that June buying actually shows a material improvement over May. The condition of consumption and demand which jobbers now encounter resembles March and April buying. Prices continue strong and the trade generally is observing quantity differentials all through this territory and nearby surrounding points.

## Sheet Bookings Increase

(*Continued from Page* 1691)

new models. June shipments have been substantially equal to those of May, and July gives no indication of a decided change. Third quarter contracts are being booked by some mills although many users buy from month to month. On full finished sheets 4.00c, Pittsburgh, is firm if concessions being made by certain makers on what they describe as special grades made by special processes be excepted. On black the larger automotive users are covering at 2.60c but this is strictly a tonnage price and other users, such as furniture interests, are paying several dollars higher. On galvanized the market is 3.50c. Some makers of blue annealed quote 1.90c; others have booked business at 2.00c or are refusing to go below that level.

**Chicago, June 26.**—Backlogs of blue annealed sheets are two to three weeks, while demand for black and galvanized is of a week-to-week nature. One mill received heavy mail orders at the beginning of the week for black and galvanized, but the type of orders does not make for tonnage. Unusually wet weather in the greater part of the North Central area is believed to be depressing demand somewhat. Mills are not crowding for operations and the rate is about 60 per cent. Mills will be closed for the Fourth of July holiday and will remain down the remainder of the week. Prices, which have reached a record low mark for this territory, are unchanged. Chicago, delivered, quotations are 2.80c for No. 24 black, 3.65c for No. 24 galvanized, and 2.15c for No. 10 blue annealed sheets.

**Cleveland, June 26.**—The bottom which sheet prices seemed to have hit several weeks ago has stretched still further downward. Whereas 2.75c, Pittsburgh, was fairly representative of the market on black sheets several weeks ago, 2.65c, Pittsburgh, or valley, now is quoted. Galvanized sheets have descended to 3.45c to 3.50c, Pittsburgh or valley, for quantity lots, but little business is moving in carloads. Autobody sheets are steady at 4.00c, Pittsburgh. Inventories, model changes, and seasonal slump have tended to decrease automotive requirements in the past week or two. Several mills continue to operate almost full with backlogs of one to two weeks. Furniture stock is quoted 3.80c to 3.90c, Pittsburgh, and is in good demand.

Occurrence, exploitation and uses of silica in western Canada are discussed in bulletin No. 686 recently issued by the mines branch, department of mines, Ottawa, Canada. Various sketches, maps, illustrations and tables are included.

# New Export Body

**Invites Producers to Join—Corp. in New Co-operative Role**

New York, June 26.—The United States Steel Products Co. and the Bethlehem Steel Export Corp., having joined in the Steel Export Association of America under the Webb-Pomerene act, have issued invitations to various steel producers to join. Headquarters of the association have been established at 25 Broadway, where the Bethlehem corporation has offices. William J. Brown, secretary of the new association, is assistant treasurer both of the Bethlehem Steel Corp. and the Bethlehem Steel Export Corp. Arthur C. Mundle, assistant secretary of the association, is secretary to the president of the United States Steel Products Co. Of the four managers, two —S. M. Bash and W. H. Stewart—are Bethlehem officials, while the other two—E. P. Thomas and G. C. Scott—are United States Steel officials.

This is the first time the United States Steel Corp., of which the United States Steel Products Co. is a subsidiary, has joined in a co-operative export organization. The Steel corporation was not a party to the Consolidated Steel Corp., which existed from 1919 to 1922. The solid front of European steelmakers in competing in the world's markets is given as one reason for the formation of the new association. No announcement may be made concerning apportioning export business until the membership is complete. It is expected that James A. Farrell, president of the United States Steel Corp. and long deeply interested in exports, will be a new factor in the new association.

The organization of the new association is expected to bring to an end the differences between the Steel corporation and Bethlehem with respect to freight rates on steel from Pittsburgh to the Atlantic seaboard in connection with steel exports. The interstate commerce commission some months ago reduced export rates on steel from Pittsburgh to the Atlantic seaboard from 75 per cent to 60 per cent of the domestic rates and this action aroused a protest from the Bethlehem Steel Corp., which contended that this reduction tended to take away Bethlehem's advantages on export business in view of the favorable location of its plants, such as Sparrows Point, which is located right on the seaboard.

# A.S.T.M. Elects Officers

Atlantic City, N. J., June 26.—With a registration which presages well-attended sessions, the American Society for Testing Materials opened its thirty-first annual meeting at the Chalfonte-Haddon Hall here this afternoon. Following the opening remarks of President H. F. Moore and the reports of various standing committees, the election of officers was announced.

Officers chosen to head the society during the coming year are as follows: President, G. W. Thompson, chief chemist, National Lead Co., Brooklyn, N. Y.; and vice president, K. G. Mackenzie, consulting chemist, Texas Co., New York. Selected as members of the executive committee were T. R. Lawson, department of civil engineering, Rensselaer Polytechnic institute, Troy, N. Y.; H. S. Mattimore, engineer of materials, Pennsylvania state highway department, Harrisburg, Pa.; P. D. Merica, director of research, International Nickel Co., New York; and Samuel Tobias Wagner, consulting engineer, Reading Co., Philadelphia. The terms of the new officers begin at the close of the annual meeting.

At a meeting of committee A-3 on cast iron Hyman Bornstein, director of laboratories, Deere & Co., Moline, Ill., was made chairman; E. J. Lowry, consulting metallurgist, General Motors building, Detroit, was made secretary; and Francis B. Coyle, International Nickel Co., New York, secretary.

# Plate Bookings Slump

Washington, June 26.—Fabricated steel plate bookings in May totaled 42,376 tons, a decided drop from 50,347 tons in April, according to reports of 51 fabricators to the department of commerce. May was the second smallest month of the year. Further monthly comparisons follow:

| | *Total | Oil storage tanks | Gas holders | Blast furnaces | Stacks and miscellaneous |
|---|---|---|---|---|---|
| 1926 (year) | 513,913 | 175,367 | 47,524 | 14,406 | 196,849 |
| 1927 | | | | | |
| May | 37,883 | 10,855 | 2,524 | 364 | 20,865 |
| Total, 5 mos. | 236,134 | 100,326 | 22,437 | 2,815 | 80,410 |
| June | 28,811 | 7,402 | 2,263 | 1,026 | 15,192 |
| July | 35,326 | 17,199 | 1,034 | 537 | 14,274 |
| Aug. | 48,577 | 29,691 | 3,504 | 481 | 11,385 |
| Sept. | 38,662 | 15,421 | 2,254 | 873 | 14,576 |
| Oct. | 47,090 | 18,648 | 3,252 | 385 | 11,599 |
| Nov. | 27,341 | 8,920 | 978 | 422 | 10,794 |
| Dec. | 35,648 | 13,367 | 3,490 | 385 | 13,088 |
| Total (year) | 497,697 | 210,974 | 39,212 | 6,924 | 171,318 |
| 1928 | | | | | |
| Jan. | 35,787 | 8,758 | 2,062 | 1,225 | 16,412 |
| Feb. | 49,820 | 25,532 | 3,679 | 143 | 15,420 |
| March | *46,840 | *25,226 | 1,897 | 699 | *14,683 |
| April | *50,347 | 22,095 | 4,654 | 619 | *16,265 |
| May | 42,376 | 14,849 | 4,636 | 202 | 17,768 |
| Total, 5 mos. | 225,170 | 98,803 | 16,928 | 2,888 | 81,548 |

*Revised

# Philadelphia Steel Club Stages Outing

The Steel Club of Philadelphia held its annual golf tournament at the Tredyffrin Country club, Paoli, Pa., June 22. Present were 35 members of the club and about 115 guests representing many important steel consuming companies in Philadelphia territory.

Thomas C. Ham, Philadelphia district sales manager of the Jones & Laughlin Steel Corp., presided over the day's program, being chairman of the golf committee. Other members of the golf committee were S. J. Cotsworth, Lorain Steel Co.; LeRoy Richards, Alan Wood Iron & Steel Co.; George F. Wilson, Ludlum Steel Co.; Frank W. Jones, Eastern Steel Co.; and H. E. Richardson, Youngstown Sheet & Tube Co.

J. B. DeWolf, Republic Iron & Steel Co., president of the club, presided over a dinner which followed the tournament. Other officers of the club are: Vice president, Willard S. Haring, Alan Wood Iron & Steel Co.; secretary and treasurer, Frank J. Krouse, Bethlehem Steel Co. Greetings were telegraphed from the dinner to William L. Hoffman, former president of the club and one of its organizers, who was away because of illness.

# Cuts Down Coke Charge

Birmingham, Ala., June 26.—The No. 2 city furnace of the Sloss-Sheffield Steel & Iron Co. is producing a ton of foundry iron with only 2300 pounds of coke and further experiments are expected to cut this down to 2100 pounds. The J. P. Dovel appurtenances to the stacks of the company have reduced flue dust to 24.6 pounds per ton of iron. The No. 1 city furnace of the Sloss-Sheffield company will be completed about Sept. 1.

The Tennessee Coal, Iron & Railroad Co. will blow in its second new blast furnace stack at Fairfield early in July.

# Manganese Grant Off

The Harriman manganese concession, which was granted by the Russian government three and one-half years ago and revised about a year later, has been dropped, according to a *New York Times* dispatch from Moscow.

In 1861 the transition from the age of iron to the age of steel occurred as a result of the success of the bessemer process.

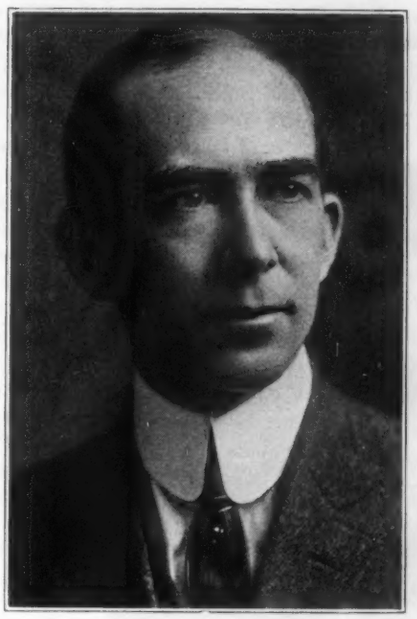
# Industrial Men in the Day's News

## E. H. Broden, for Thirty-Three Years a Manufacturer of Wire

*FROM chief draftsman in a small nail mill in Cleveland, he rose to head of all Pittsburgh district wire mills of the United States Steel Corp.*

*HE IS interested especially in engineering and operating problems of steel and wire plants and has introduced many successful innovations.*

*HIS acquaintanceship in the iron and steel industry is wide. Golf and other athletic sports have in him an ardent follower.*



IN THE space of 33 years, Edwin H. Broden has spanned what would seem to be the wide gulf between the position of chief draftsman of a small nail mill in Cleveland and that of manager of all wire mills in the Pittsburgh district of the wire and nail subsidiary of the United States Steel Corp., the American Steel & Wire Co. On Jan. 4, 1928, Mr. Broden succeeded C. F. Blackmer as manager of this interest's wire mills in Pennsylvania, located at Allentown, Donora, Braddock, Rankin and Farrell, Pa.

Mr. Broden has had a 33-year affiliation with the Steel & Wire company and its predecessors. He was born in Cleveland and following his graduation from Central high school there he took up special studies at Yale university, New Haven, Conn. Between the years 1895 and 1898 he was associated with the H. P. Nail Co., Cleveland, as chief draftsman. When that plant was taken over by the American Steel & Wire Co. in 1898 he remained as chief draftsman and engineer for that interest's Lake Shore district. From 1901 to 1905 he was with the National Wire Corp., New Haven, Conn., as assistant constructing engineer, returning then to Cleveland as chief draftsman of the Newburg wire works of the American Steel & Wire Co. After a year in that capacity, Mr. Broden was transferred to the same duties at the company's Allentown, Pa., works, serving from 1906 to 1907. In the latter year he was appointed engineer and became attached to the office of general superintendent at Pittsburgh. It took him but a short time to demonstrate his ability and in that same year he was appointed assistant superintendent of the company's Rankin works at Braddock, Pa., in which capacity he remained for about six years. He was promoted to the superintendency in 1913, discharging those duties ably and well and in 1916 was appointed superintendent of the Rankin works, where he remained until 1925. On Feb. 15 that year the Rankin and Braddock plants of the Steel & Wire company were consolidated and placed under one management, with Mr. Broden as superintendent. He held this position until January, 1928 when he was advanced to manager of the company's wire mills in the Pittsburgh district.

Mr. Broden is an ardent follower of many athletic sports, including golf. He is interested especially in all engineering and operating problems in connection with steel and wire plants and has, upon occasion, introduced innovations which have proven their worth and merit. He possesses a wide acquaintanceship in the iron and steel industry throughout the country. Since 1912 he has been a member of the American Society of Mechanical Engineers and the American Iron and Steel institute.

# Men of Industry

## Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

WILLEBY T. CORBETT, who on June 19 was elected vice president of the United States Steel Products Co., New York, subsidiary of the United States Steel Corp., was born in Philadelphia 51 years ago. He has been affiliated with subsidiaries of the Steel corporation for 33 years, 25 of which he

W. T. CORBETT

has been manager of the rail department of the Steel Products company. Mr. Corbett is a member of the American Iron and Steel institute, American Society for Testing Materials, Machinery club, and other organizations.

C. O. Holmes, also elected a vice president of the United States Steel Products Co. on June 19, was born in Auburn, N. Y., in 1874. He was graduated from Williams college, Williamstown, Mass., in 1896, later entering D. M. Osborne & Co., Auburn, Mass., now a part of the International Harvester Co. He entered the Carnegie Steel Co. sales department in 1898 and later joined the United States Steel Products Co. handling details of Carnegie products other than rails. He was manager of the structural steel department.

* * *

N. H. Orr has been appointed contracting engineer for the small beam division, steel construction department of Jones & Laughlin Steel Corp., Pittsburgh.

* * *

Gilbert S. Sank, formerly in charge of the Philadelphia office of E. Arthur Tutein Inc., has become affiliated with Hickman, Williams & Co. Inc., Philadelphia, where he will specialize in coke, both domestic and commercial.

* * *

Lucius M. Wainwright, head of the Diamond Chain Co., of Indianapolis, and O. B. Iles, president of the International Machine Tool Co., have been named vice presidents of the Morris Plan Co. of that city.

* * *

Raymond O. Abbott, for three years secretary and treasurer of the National Pipe Bending Co., New Haven, Conn., was elected president and treasurer, succeeding the late H. S. Brown.

Wade G. Marks, sales promotion manager, was elected secretary succeeding Mr. Abbott.

* * *

O. H. Davidson, president of the O. H. Davidson Equipment Co., Denver, has been appointed district manager in the Rocky Mountain territory by the Oliver Iron & Steel Corp., Pittsburgh. Mr. Davidson will represent the bolt, nut, rivet and pole line material departments of the Oliver company.

* * *

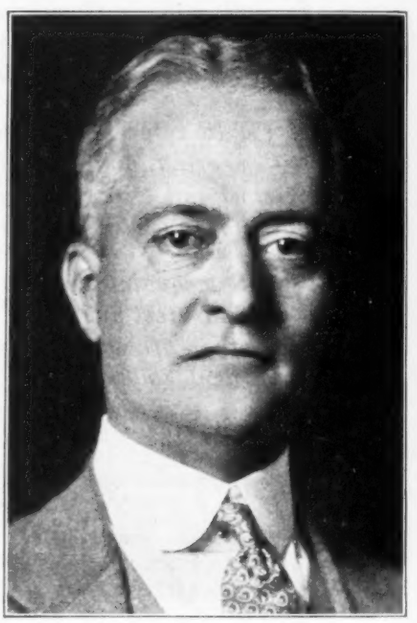
S. G. Artingstall Jr., formerly chief engineer for the J. C. Buckbee Co., Chicago, consulting engineer, has been made manager of the new branch office at Chicago opened by the C. O. Bartlett & Snow Co., Cleveland, manufacturer of material handling and processing equipment. Mr. Artingstall was at one time with the Stearns Conveyor Co., Cleveland.

* * *

Frank A. Vaughn of Milwaukee, a graduate of the electrical engineering course of the University of Wisconsin in 1895, has been awarded a professional degree in electrical engineering by the faculty. Mr. Vaughn is president of F. A. Vaughn Inc., consulting engineers, and vice president of the School of Engineering of Milwaukee.

* * *

George Smith has been elected vice president of Hanson-Van Winkle-Munning Co., Matawan, N. J., maker of electroplating and polishing equipment. His first work was with the General Electric Co. at Lynn, Mass., leaving to join A. P. Munning & Co. Sept. 1, 1922. In August, 1923, he joined Roth Bros. & Co. as vice presi-



C. O. HOLMES

dent and general manager, resigning to accept his new position.

* * *

C. E. Brinker has been made foundry engineer of the Whitehead Metal Products Co., Philadelphia. Mr. Brinker's foundry experience covers 26 years, the past fifteen years having been spent in various plants in Detroit which supply castings to the automobile industry. He was superintendent of the Holmes Foundry Co., Port Huron, Mich., for ten years and also foreman of the Campbell, Wyant & Cannon Co., Muskegon, Mich., and the Cadillac Motor Co., Detroit.

* * *

Joseph Nixon has been appointed foundry superintendent of the H. G. Trout Co., Buffalo. Mr. Nixon served his apprenticeship in the foundry of T. Shore & Sons, Etruria, England, and came to the United States in 1914. He was placed in charge of the

(*Concluded on Page* 1706)

# British Regain Home Markets

## Only German Tubes Serious Contender in Domestic Trade at This Time—Pig Iron Prices Suffer from Sharp Competition—Belgium Prices for Export Easier—Galvanized Sheets Firmer as Tin Plate Quiets Down

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, June 25.—(*By cable*)—Foreign competition for iron and steel has been considerably reduced, except for tubes from Germany. Staffordshire iron rollers are more optimistic and are resuming exports to South Africa and South America.

Pig iron is depressed, domestic makers competing with each other. The Middlesbrough area is the strongest, resuming sales to the continent. Galvanized sheets are firmer in sales to the West Indies and to South West Africa and Australia. Tin plate is quiet. A Manchester maker has obtained an order for 18 locomotives for India.

Berlin reports its domestic market quieter; the German association has increased export quotas from 20 to 30 per cent. Paris reports domestic prices stabilizing with little further change expected. From Brussels comes word that export prices are easier, with German competition small. Southern China is buying more.

# British Steel Revival Slower Than Expected

BIRMINGHAM, Eng., June 15.—(*European Staff Service*)—The trade improvement, alike in production and overseas trade, has not come up to the forecasts of the early months of the year. Pig iron and steel production for May represent only a moderate increase. Exports maintain the small advance on recent months, while imports confirm the evidence that, to a much less extent than for some years past, foreign steel is coming into this country. For example, we received 45,000 tons of billets against 64,000 tons a year ago. Imports of pig iron have become negligible, although exports are not nearly back to the old standard. All that can be said is that the changes are in the right direction.

Imports, including scrap, totaled

**Sterling—$4.88**

239,875 tons compared with 255,365 tons in April and 364,788 tons in May 1927.

Exports of pig iron show a little improvement on April, foundry pig iron totaling 21,669 tons against 16,899 in April and acid 18,445 tons against 10,958. Ferro-alloys have increased from 3637 tons to 4554 tons.

General exports were valued at £58,554,470, compared with £55,267,973 in April and £63,275,874 in May last year.

Steel mills able to make full time regard themselves as fortunate, but it is some compensation that their improved position in relation to foreign competition is maintained. Steelmakers are restraining inclination to put up prices, although they are very finely cut, and they are not disposed to weaken their position in competition with the Continent. There is a marked deficiency of orders for heavy steel, and structural work has latterly been almost restricted to picture houses with an occasional factory here and there, although the aggregate demand for standard steel must be considerable. Now that the railways are concentrating their energies on cultivation of road competition, they are ordering little material for rolling stock or track renewal. Activity at wagon and carriage works is almost entirely for foreign railways, one notable order being 500 all-steel wagons for South America. By way of

# Current Iron and Steel Prices of Europe

| Dollars at Rates of Exchange, June 25 | *British* Gross Tons U. K. Ports | £ s d | *French* Metric Tons Channel Ports | £ s d | *Belgium and Luxemburg* Metric Tons Channel Ports | £ s d | *German* Metric Tons Rotterdam or North Sea Port | £ s d |
|---|---|---|---|---|---|---|---|---|
| **Export Prices f. o. b. Ship at Port of Dispatch—By Cable** | | | | | | | | |
| **PIG IRON** | | | | | | | | |
| Foundry No. 3, Silicon 2.50-3.00 | $16.10 | 3 6 0* | $15.37 | 3 3 0 | $15.37 | 3 3 0 | $15.62 | 3 4 0 |
| Basic | 15.86 | 3 5 0 | 14.64 | 3 0 0 | 14.64 | 3 0 0 | 15.37 | 3 3 0 |
| Basic-bessemer | 16.84 | 3 9 0† | 14.64 | 3 0 0 | 14.64 | 3 0 0 | 14.64 | 3 0 0 |
| Hematite, Phosphorus 0.02-0.05 | 16.84 | 3 9 0 | 22.20 | 565* | .... | .... | 17.08 | 3 10 0 |
| **SEMIFINISHED STEEL** | | | | | | | | |
| Billets | $29.28 | 6 0 0 | $23.30 | 4 15 6 | $23.30 | 4 15 6 | $23.67 | 4 17 0 |
| Wire rods | 42.70 | 8 15 0 | 29.28 | 6 0 0 | 29.28 | 6 0 0 | 29.28 | 6 0 0 |
| **FINISHED STEEL** | | | | | | | | |
| Standard rails | $37.82 | 7 15 0 | $31.11 | 6 7 6 | $31.11 | 6 7 6 | $31.11 | 6 7 6 |
| Merchant bars | 1.53c | 7 0 0 | 1.25c | 5 14 0 | 1.25c | 5 14 0 | 1.27c | 5 15 0 |
| Structural shapes | 1.61c | 7 7 6 | 1.07c | 4 17 0 | 1.07c | 4 17 0 | 1.08c | 4 18 0 |
| Plates, ship, bridge and tank | 1.77c | 8 2 6 | 1.40c | 6 7 0 | 1.40c | 6 7 0 | 1.41c | 6 8 0 |
| Sheets, black, 24 gage | 2.18c | 10 0 0 | 2.35c | 10 14 0 | 2.35c | 10 14 0 | 2.18c | 9 18 0 |
| Sheets, galvanized, 24 gage, corrugated | 2.91c | 13 7 6 | 2.89c | 13 2 6 | 2.89c | 13 2 6 | 2.92c | 13 5 0 |
| Bands and strips | 2.23c | 10 5 0 | 1.47c | 6 14 0 | 1.47c | 6 14 0 | 1.43c | 6 10 0 |
| Plain wire, base | 2.12c | 9 15 0 | 1.54c | 7 0 0 | 1.54c | 7 0 0 | 1.67c | 7 12 0 |
| Galvanized wire, base | 2.94c | 13 10 0 | 1.98c | 9 0 0 | 1.98c | 9 0 0 | 2.00c | 9 2 0 |
| Wire nails, base | 2.51c | 11 10 0 | 1.62c | 7 7 6 | 1.62c | 7 7 6 | 1.65c | 7 10 0 |
| Tin plate, base box 108 pounds | $ 4.58 | 0 18 9 | .... | .... | .... | .... | $ 6.83 | 1 8 0 |

*Francs

| Domestic Prices at Works or Furnace—Last Reported | | Francs | | Francs | | Marks |
|---|---|---|---|---|---|---|
| Foundry No. 3 Pig Iron, Silicon 2.50—3.00 | $16.10 3 6 0 | $17.49 | 445(2) | $16.46 | 590 | $18.64 78 |
| Basic pig iron | 15.86 3 5 0 | 18.86 | 480(1) | 15.07 | 540 | 21.03 88 |
| Furnace coke | 3.17 0 13 0 | 5.90 | 150 | 5.16 | 185 | 5.14 21.50 |
| Billets | 29.28 6 0 0 | 21.81 | 555 | 23.72 | 850 | 28.92 121 |
| Standard rails | 1.74c 8 0 0 | 1.48c | 820 | 1.43c | 1,100 | 1.51c 140 |
| Merchant bars | 1.55c 7 2 6 | 1.23c | 685 | 1.33c | 1,025 | 1.52c 141 |
| Shapes | 1.72c 7 17 6 | 1.17c | 650 | 1.19c | 915 | 1.49c 138 |
| Plates, ship, bridge and tank | 1.89c 8 12 6‡ | 1.51c | 840 | 1.48c | 1,140 | 1.71c 158 |
| Sheets, black, 24 gage | 2.29c 10 10 0 | 2.74c | 1,520 | 2.44c | 1,880 | 2.43c 225 |
| Sheets, galvanized 24 gage, corrugated | 2.91c 13 7 6 | 3.42c | 1,900 | 2.99c | 2,300 | 3.78c 350 |
| Plain wire | 2.12c 9 15 0 | 1.71c | 950 | 1.95c | 1,500 | 2.48c 230 |
| Bands and Strips | 2.23c 10 5 0 | 1.40c | 775 | 1.76c | 1,350 | 1.77c 164 |

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.17) f. o. b. Ferromanganese £21 10s 0d ($104.92) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($73.20) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

exception, the railways are ordering a few bridges, seldom, however, requiring more than 150 tons of steel each.

A curious development is the issue by steelworks of biweekly rolling lists. This is done when additional orders received in the early part of the week have the effect of including one or two fresh sizes in the rolling program. Prices continue strongly competitive with the Continent. British billets are obtainable at £6 5s ($30.50) against £5 15s ($28.06) for foreign. Continental steel has no chance of sale with this slight advantage, especially as deliveries of foreign material are so uncertain and unreliable. Similarly bars at £6 17s 6d ($33.55) cannot compete with English rerolled at £7 2s 6d ($34.77). Purchases from abroad seldom exceed 25 to 50 tons.

### Rail Orders Are Needed

Rail mills are missing orders from British lines. The rail mill at Barrow has been idle for a few months, although prior to the stoppage at Easter the mill had a regular run for 15 months. Hoop and merchant mills are the only plant in regular operation at that works.

Shipments of finished steel for May compare unfavorably with those of a year ago, under nearly every head of production, and this entirely accords with statistics lately published at Middlesbrough, where a large reduction was shown in all the markets served from that important center.

In the west of Scotland the orders for shipbuilding and export are insufficient to keep the mills regularly at work. Business is quiet also in the Sheffield area. The best demand there is for special steels, but unfortunately these do not bulk largely in output.

### Pig Iron Imports Drop

In pig iron the most hopeful feature is the disappearance of the big tonnages which were a feature of imports at this time last year. Thus the arrivals of foundry iron for the five months ended May totaled 26,923 tons against 139,704 tons in the same period last year, and basic pig iron 29,424 tons compared with 176,050 tons. For the last two or three years basic imports have reached rather serious dimensions, but exports show no compensating advantage and do not indicate that the country is returning to its old position as a great pig iron exporter. There are now in Middlesbrough five fewer furnaces than at the beginning of the year and the tendency is further to limit production. The only satisfactory feature is that stocks are comparatively low. Rather more hematite has been sent from Middlesbrough to foreign destinations during the past few months.

In the Barrow area, makers are inclined to be pessimistic, finding difficulty in disposing of the output of the eleven furnaces. For some years the production of 24 furnaces was readily disposed of, but stocks are accumulating, and there seems every probability that further curtailment of output will be necessary. There is some satisfaction in that area that it has been found possible to regulate wages automatically on the basis of the selling price of hematite pig iron, and further price reductions have not been necessary.

Steel scrap maintains its firmness on the basis of £3 7s 6d ($16.47) to £3 10s ($17.08) delivered South Wales. In spite of scarcity rather large sales are being made to Germany and Poland at better prices than are obtainable from South Wales which otherwise is the principal buyer.

The trying position of iron and steel was indicated this week when Sir Holberry Mensforth, managing director of Bolckow Vaughan & Co., Ltd., declared that British firms are selling pig iron at a price no higher than in 1913 and steel at prices no more than 20 per cent above, although material and services have increased in cost over 50 per cent. The statement was made by a deputation to the premier who was asked to facilitate the further application of the safeguarding of industries act. Mr. Baldwin admitted the case was one for careful examination, but in the estimation of many steelmakers the position is rapidly becoming urgent.

The tin plate trade continues to expand its order books and prices are tending upward. Orders are seldom accepted at 18s 6d ($4.51) and 18s 9d ($4.57) is a much more usual price. For prompt supplies 19s ($4.63) is occasionally paid. Few mills can promise delivery before August.

### Steel Bars Are Firm

An element of strength is firmness of steel bars; £6 ($29.28) has become a minimum price and £6 2s 6d ($29.89) is commonly asked. Orders for tin plates are practically worldwide, and are coming in good quantity from South America, South Africa, Australia and the Continent. Demand for black plates has become somewhat quieter.

Export of tin plates for May totaled 47,358 tons, compared with 50,937 a year ago. For the five months the total was 216,086 tons, against 209,193.

The trade in galvanized sheets continues only moderate, but prices are firm at a minimum of £13 5s ($64.66) with an increasing proportion realizing £13 7s 6d ($65.27) to £13 10s ($65.88). Black sheets and plates are called for in fair quantities for working-up purposes.

Shipments of galvanized sheets are fairly maintained. In May they totaled 61,061 tons, against 74,165 in May of last year. In April the total was 59,380 tons. For the five months the exports were 298,223 tons compared with 319,670 for the five months of 1927.

## German Imports Grow

Berlin, June 11.—(*European Staff Service*)—Exports of steel from Germany in April were slightly lower than March, but account should be taken of the shorter month. This figure includes scrap. Among the principal items exported were: bars, shapes, hoops and bands, 89,415 tons; semifinished products, 54,706 tons; rails, sleepers and track fastenings, 49,452 tons; wire rod and wire, 37,188 tons; plates and sheets, black, 26,387 tons; forged tubes, 21,580 tons; forgings 19,003 tons. The amount of scrap exported was 16,711 metric tons.

Among the principal items imported in April were: bars, shapes, hoops and bands, 86,492 tons; semifinished products, 24,942 tons; rails, sleepers and track fastenings, 12,583 tons; wire rod and wire, 11,518 tons. The tonnage of scrap imported in April was 54,264 metric tons. The following table gives figures for the first four months of 1928 as compared with the monthly averages of the three preceding years, in metric tons:

| | IMPORTS | | EXPORTS | |
|---|---|---|---|---|
| Mon. ave. | Pig iron | Other iron and steel | Pig iron | Other iron and steel |
| 1925 ..... | 17,190 | 103,525 | 18,540 | 277,190 |
| 1926 ..... | 9,230 | 95,890 | 42,730 | 402,905 |
| 1927 ..... | 23,895 | 217,505 | 29,910 | 347,645 |
| 1928 | | | | |
| Jan. ..... | 27,493 | 234,899 | 13,879 | 349,147 |
| Feb. ..... | 23,086 | 217,238 | 21,579 | 369,197 |
| March .... | 19,068 | 229,267 | 26,488 | 408,310 |
| April ..... | 27,113 | 219,298 | 19,583 | 393,227 |

## French Exports High

Paris, June 11.—(*European Staff Service*)—Exports of steel from France during March continued high, although they did not reach the February figure, which was the highest on record.

March imports of steel products were the highest since March, 1927, when the figure was 9199 metric tons. The following table gives figures for the first three months of 1928, compared with the monthly averages of the three preceding years, in metric tons:

| | IMPORTS | | EXPORTS | |
|---|---|---|---|---|
| Mon. ave | Pig iron | Steel | Pig iron | Steel |
| 1925 ..... | 2,693 | 11,703 | 58,835 | 272,270 |
| 1926 ..... | 1,990 | 11,930 | 58,545 | 264,530 |
| 1927 ..... | 3,230 | 6,490 | 69,640 | 363,305 |
| 1928 | | | | |
| Jan. ..... | 2,472 | 3,663 | 57,496 | 328,269 |
| Feb. ..... | 5,246 | 7,548 | 49,515 | 415,148 |
| Mar. ..... | 4,422 | 8,913 | 57,534 | 377,351 |

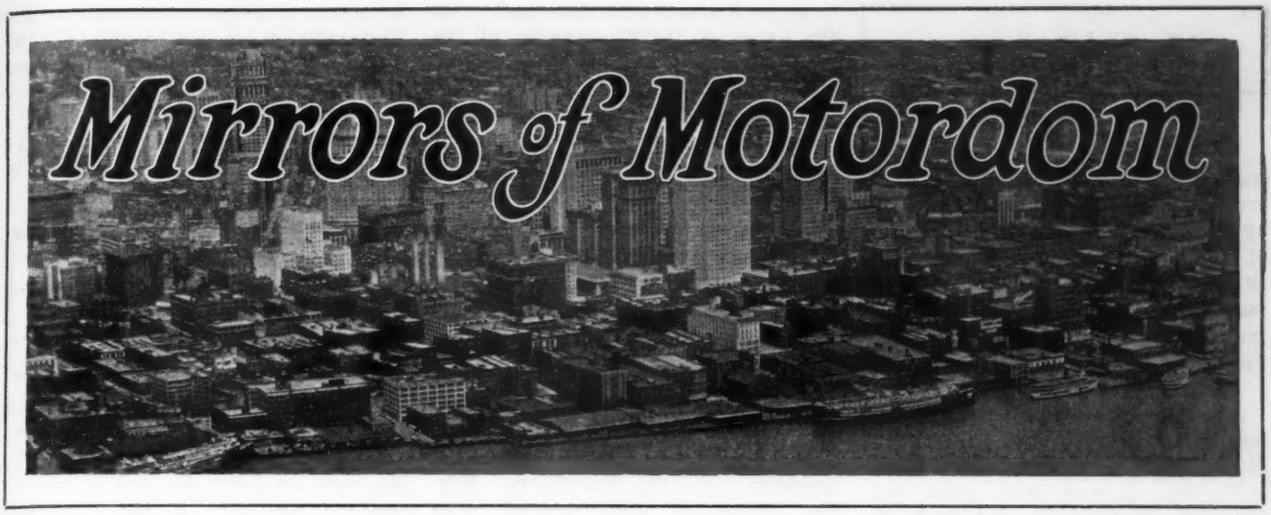
## French Coke Near Record

Paris, June 11.—(*European Staff Service*)—The production of coke at the French collieries during April reached the second highest figure, the record having been reached in the preceding month.

Imports of coke into France in April were the highest in 1928. The April imports included 360,368 tons from Germany, 78,415 tons from Belgium, 43,612 tons from Holland, and 180 tons from Great Britain.

April exports of coke included 7066 tons to Italy, 6878 tons to Yugo-Slavia, 5500 tons to Switzerland, 1591 tons to Belgium and Luxemburg, the balance going to Spain, Morocco, Indo-China, Germany, Algeria, and other countries. The following table gives figures for the first four months of 1928 as compared with the monthly averages of the three preceding years and 1913, in metric tons:

| Mon. ave. | Production | Imports | Exports |
|---|---|---|---|
| 1913 ..... | 325,620 | 255,835 | 17,085 |
| 1925 ..... | 255,410 | 416,880 | 39,440 |
| 1926 ..... | 313,950 | 462,915 | 39,320 |
| 1927 ..... | 339,015 | 395,580 | 33,430 |
| 1928 | | | |
| Jan. ..... | 357,475 | 473,018 | 25,840 |
| Feb. ..... | 343,186 | 411,455 | 23,119 |
| Mar. ..... | 369,360 | 445,656 | 15,324 |
| Apr. ..... | 360,446 | 482,575 | 22,689 |




# Only Inventories, New Models Check Auto Output

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# Automotive Mergers May Stabilize Steel Prices

*Detroit, June 26.*

MIDYEAR finds automotive production remarkably little changed from the spring peak. Holdups for new models and for inventory-taking almost completely account for the deviation. Not for several years has the industry come up to July 1 on such a high operating basis.

While specifications for July shipments of finished steel for automotive use are not quite so heavy as for June, and it is conceded that production will go lower before it goes higher, still there is every indication that the midsummer dip will be well rounded at both curves. August is now generally designated as the low point of the midyear decline.

Ford is still at 2500 to 3000 units daily, but that is a story by itself. Chevrolet is going so strong, partially on account of Ford inertia, that gossip over the substitution of a six-cylinder engine in the present chassis has waned. Willys-Overland is concluding a record June. Reo is still behind on Flying Cloud orders and Hupp is settling down to a steady gait now that the honeymoon of its new Six and Eight is over.

Chrysler will have a private showing of its new models July 2. Bodies for the new Buicks are in production at the Fisher plants and dealers soon will receive display models. Packard is down for two weeks for a combination of vacations. retooling and inventory. Dodge production drags, but no worse than thirty days ago. Oldsmobile, Oakland, Pontiac and the higher-priced cars have eased off imperceptibly.

* * *

SPECULATION over automotive mergers has subsided since the Chrysler-Dodge union but this may only be an indication that progress is being made quietly. Certainly the merger bug has bitten the automotive industry now that the iron and steel field appears to have become immune. There is a universal conviction that in the not distant future the stronger, smaller producers will be linking models and fortunes. Meanwhile, the effort on the part of most producers is to husband their cash and be prepared to enter a combination in the strongest possible financial situation.

Thus far the tendency toward concentration of iron and steel buying has about neutralized the similar movement in iron and steel selling, but within two years it is expected that buying of automotive pig iron and finished steel will be in fewer hands. More stable prices may be one consequence. Always excepting Ford, the larger users exert less pressure on prices than the smaller ones. A leading seller of finished steel cannot recall when any purchasing department, save that of Ford, has sought price concessions in the past six months.

* * *

SHOCK absorbers may cushion the highways but, if rumor be credited, they have only roughened the way for Ford production. It is a fact that inability of parts makers to supply sufficient absorbers has held the schedule below 3000 units daily, giving rise to further rumors that Ford may switch over to the absorber Continental Motors Corp. is introducing, but this only typifies and does not sum up the difficulties. It is the extreme precision demanded of not only shock absorbers but also of a hundred and one other small parts that has held up the procession. Model A is claimed to be a finely engineered car as well as an entirely new mechanical setup and, considering this, the output to date is said by some to be an achievement rather than a reproach.

A new but plausible explanation of Ford delay is this: Until a daily schedule of 4500 to 5000 units is attained every car put out entails an actual financial loss. Therefore, to minimize this loss production is being held in check until the profit area can be reached in one jump. To step up gradually would not satisfy demand and only swell the deficit.

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ONE seller of a highly-competitive classification of finished steel won $28.50 and a billfold at a golf tournament one afternoon recently.

"Which is more," he observes, "than I would have made for the company in selling steel that day."

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Fire extinguishing equipment shipments in May totaled 101 pieces of motor apparatus and 55,033 hand type, compared with 101 motor and 46,643 hand type in April, according to reports to the department of commerce.

## Men of Industry

(*Concluded from Page* 1702)

iron foundry of the Canadian Western Steel Co., Redcliffe, Alberta, in 1916. In 1919 he was given charge of the Wood & Safford Machine Co., Great Falls, Mont., and in 1922 was made superintendent of the nickel foundry, American Mond Nickel Co., Clearfield, Pa.

* * *

John Gross, for many years in the purchasing department of the Ford Motor Co., Detroit, has resigned.

* * *

Jay C. McLaughlan, of Pickands, Mather & Co., Cleveland, sailed June 23 for a two-month vacation in Europe.

* * *

R. H. Clarke, vice president of the Midland Steel Products Co. and Otis Steel Co., Cleveland, has sailed from New York for a two month trip to Europe.

* * *

M. F. Lieberman, Ambridge, Pa., has been elected president of the Sheet Metal Contractors' Association of Pennsylvania.

* * *

George W. Chamberlain, Hibbing, Minn., has been appointed chief engineer on the Cuyuna range for Pickands, Mather & Co., with headquarters at Crosby, Minn.

* * *

Richard F. Grant, vice president of M. A. Hanna & Co., Cleveland, has been made president of the newly formed sales corporation of the Lehigh Valley Coal Co.

* * *

J. D. Crummey has been elected president of the Bean Spray Pump Co., San Jose, Calif., succeeding David C. Crummey, founder, whose death was noted in the June 14 issue.

* * *

H. A. Daniel, Newburg, N. Y., has been elected president of the Sheet Metal Contractors Association of New York State. The election was held at the recent convention of that association at Syracuse, N. Y.

* * *

Francis A. Emmons, sales and advertising manager of the Foote Bros. Gear & Machine Co., Chicago, was elected president of the Enginering Advertisers association, Chicago, at its recent annual meeting.

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Maurice A. Oudin, vice president of the International General Electric Co. Inc., who just has returned from a trip to Europe, was decorated with the order of the Commander of the Crown of Italy, in that country.

* * *

Dr. Edward Deane Adams, 920 Fifth avenue, New York, heads a group of engineers now enroute to Europe to take part in the dedication of the American Engineers memorial at the University of Louvain on July 4. The memorial, a clock and carillon costing $80,000, was presented to Louvain by the Engineering Foundation as a tribute of engineers of this country to their fellow engineers who died in the World war.

# Obituaries

FRED H. McISAAC, 44, secretary and treasurer of the Lamson & Sessions Co., Cleveland, and president of the Kirk-Latty Mfg. Co. when it was merged with the Lamson & Sessions Co. in 1926, died at Cleveland, June 20. Mr. McIsaac, who had been ill only two weeks, was at one time vice president of the American Hardware association and had been prominent in the affairs of the Bolt, Nut and Rivet institute. He began with the Kirk-Latty Mfg. Co. as an office boy in 1901 and was made president in February, 1926. In addition to being secretary and treasurer of the Lamson & Sessions Co. he was manager of the Kirk-Latty division of the company.

FRED H. McISAAC

* * *

Theodore Disch, formerly superintendent of the Prescott Iron Works, Menominee, Mich., died June 3.

* * *

J. S. Roberts, formerly connected with the United States Cast Iron Pipe & Foundry Co., Burlington, N. J., died at his home in Cleveland, June 18. Mr. Roberts was born Aug. 31, 1863, and had been connected with the pipe industry for 34 years. In the past 14 years he had served as resident manager of the Cleveland shop of the United States company.

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Charles Stadler, 43, head of the Stadler Iron Works, Scranton, Pa., committed suicide recently.

* * *

William H. Peters, vice president and director of purchases of the Jaeger Machine Co., Columbus, O., died June 20.

* * *

William F. Quandt, 63, superintendent of the West Coast Pipe & Steel Co., Los Angeles, died June 9 at his home there.

* * *

Clarence M. Larson, 54, chief engineer of the railroad commission of Wisconsin, and on its engineering staff for nearly 25 years, died June 9.

* * *

Fred M. Pease, 63 pioneer railway supply man of Chicago, died June 19 in that city. He was widely known among manufacturers and salesmen of railway supply materials.

* * *

Joseph K. Choate, 74, New York, until last April for 15 years vice president of J. G. White Management Corp., died June 19 in San Francisco, of pneumonia. He was born in Salem, Mass. From 1879 to 1884 he was chief assistant engineer in the construction of the Erie railroad. For 12 years he was superintendent of the Union Pacific and for 19 years following practiced as a consulting expert.

* * *

Charles T. Strawbridge, vice president of the Bass Foundry & Machine Co., Fort Wayne, Ind., died in his home there June 10 at the age of 70 years. He entered the employ of that company in 1879 and was elected secretary in 1900. He became vice president two years later, and also served as vice president of the Rock Run Iron Co., Rock Run, Ala., and the Fort Wayne Foundry & Machine Co., Fort Wayne.

# Machinery

**Events of Past Week Forecast Better Sales Ahead—Westinghouse List Large—One Crane Inquiry for Steel Mill Call for 16 Units**

UNLIKE reports of one week ago, a resume of the past week gives rise to the belief that machine tool and equipment business during the latter part of June will reach a sizable total. Numerous small orders have been closed and more are in prospect. Farm equipment and tractor builders continue to place machinery and general manufacturers are acquiring tools to satisfy their needs. Westinghouse Electric & Mfg. Co. has issued its third quarter list calling for between 80 and 90 items. General Electric Co. is seeking miscellaneous equipment for its refrigerator department. Several contracts have been placed by boards of education for high and trade school equipment. Some 17 cranes are asked for a proposed new steel mill in the Pittsburgh district.

**New York, June 26.**—While current buying is only moderate, inquiries continue to accumulate with the likelihood of substantial buying in some quarters shortly. General Electric Co. is still bringing out inquiries for its refrigerator department at Schenectady, N. Y., fully eight miscellaneous machines having been brought out in the past few days. Franklin Motor Car Co., Syracuse, N. Y., has brought out some additional inquiries. Several lists of light equipment are pending for schools in New Jersey. Specifications have been completed on a large list for shops now under erection for the board of transportation in upper New York, however, it is reliably understood that the inquiry will not be issued until October. A machine and blacksmith shop will be erected at Roosevelt aviation field, Long Island, for which equipment will be required. Crane demand is light, with few orders reported. Twenty-three engine lathes, including eighteen 13-inch and five 16-inch have been booked within the past week by the Pratt & Whitney Co.; the majority, however, were for the Middle West, with a number for one company in the Chicago district.

**Pittsburgh, June 26.**—A machine tool list of between 80 and 90 items and a list of 16 or 17 cranes are features of the equipment market. The latter is unidentified, but having been out now for four or five weeks, will shortly be closed, and is understood to be for a new steel mill in the Pittsburgh district. The former is the third quarter list of Westinghouse Electric & Mfg. Co. In addition to four or five items for its Sharon, Pa., plant, a few machines are wanted for Trafford City and the remainder for East Pittsburgh works. The list comprises six milling machines, two each, shapers, grinders and lathes, a radial drill, together with much miscellaneous equipment and some tin or plate shop machinery such as angle benders, metal cutters, etc. This is the largest list issued by the Westinghouse company in a long period and has occasioned much interest on the part of the trade since it is believed that most, if not all, will be purchased. A large number of single item sales are noted, some of which represent an outlay of $4000 or $5000 apiece. The board of education has distributed orders for the Brushton, Pa., high school equipment, one interest obtaining six 9-foot by 3-inch lathes. The trade believes the equipment market is on the mend and are optimistic concerning the late summer and early fall, believing that after vacation and before election numerous expenditures will be made.

**Chicago, June 26.**—Good orders for machine tools are reported from most dealers, particularly from those doing business with farm equipment and tractor manufacturers, who have been steady buyers. J. I. Case Threshing Machine Co., Racine, Wis., is closing on its inquiry for about $90,000 worth of machine tool equipment, the inquiry having been before the trade for some months. Cromadium Corp., Chicago, has purchased about $5000 worth of tools and will order some additional items. Foundry and jobbing machine shop interests have been active in inquiry and single-tool purchases. Most dealers report June business equal to or ahead of May. Several distributors expect the six months of this year to show a gain in volume over last year of 35 to 45 per cent. Chicago board of education has several inquiries in the making, and closed during the week on an 18-inch portable band saw for Curtis Junior high school. New railroad inquiry is confined to minor items from the Burlington and one or two other western carriers. Used tool inquiry appears active, but is largely in the form of trade-in offers.

**Cleveland, June 26.**—Some small pick-up in equipment activity has been in evidence during the past week. No large sales have been made, but there is a more optimistic feeling as to business ahead in the next two months. Sales are well scattered, with one or two units constituting an order. Only fill-in and replacement purchases are being made by the automotive industry in this territory and Detroit. Little extensive business from this source is expected until some time in August. Used machinery retains its position of active demand.

## CRANE ORDERS PLACED

Among single orders were: Locomotive truck crane for Corson Construction Co., New York, to Browning Crane Corp.; locomotive truck crane for Hobbs, Peabody Co., Charlotte, N. C., to Browning Crane Corp.; 25-ton electric locomotive crane for James Thompson, sand and gravel, Port Richmond, Staten Island, N. Y., to Industrial-Brownhoist Corp.; 2-ton handpower crane for Brooklyn stoneyard, to New Jersey Foundry & Machine Co.; 3-ton handpower crane for a Jersey City, N. J., dealer, to New Jersey Foundry & Machine Co.

## CRANE ORDERS PENDING

Sixteen or 17 cranes for an unidentified steel interest in the Pittsburgh area; bids being taken.

Several electric hoists for Fox Bros. & Co., New York, for installation in Canada; pending.

15-ton crane for American Sheet & Tin Plate Co., Wellsville, O.; bids being taken.

## Rumor U. S. Steel Seeks Canadian Ore

Toronto, Ont., June 26.—According to reports from Fort William, Ont., representatives of the United States Steel Corp. have been through that district and have been acquiring options where possible on iron ore properties. It is said that on the McGugan properties along the Pee Dee railroad, beyond Silver Mountain, hematite ore or similar to that of the Mesabi range running 56 to 62 per cent iron has been uncovered. Another rumor is that this American interest is seeking a location for a steel plant near Fort William and is considering the old Atikokan blast furnace.

## Trolley Designed for Use on 95-Foot Crane

In connection with the description of a new worm-type roller-bearing crane trolley appearing on Page 1645 of the June 21 issue of IRON TRADE REVIEW it was incorrectly stated that the trolley had a span of 95 feet. The item should have said that the trolley was designed for operation on a crane having a span of 95 feet. Likewise, the statement, "worm wheels are bronze alloy rims with hobbed teeth, bolted to a cast-iron center," should have read "bolted to a cast-steel center." The crane and trolley were built by the Morgan Engineering Co., Alliance, O.

## Matches Chicago Rate

Pittsburgh, June 26.—The new 75-cent all-rail rate on tin plate from Pittsburgh to the Pacific coast, recently agreed to by the Central Freight association and western roads, has been published to become effective July 1. This is the Chicago basic rate, thus giving Pittsburgh the same rate as Chicago on tin plate to the coast.

# Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

JAMES B. CLOW & SONS, Chicago, have bought a controlling interest in the National Cast Iron Pipe Co., Birmingham, Ala. E. E. Linthicum will remain as president and a board of directors will be elected to include interests of the Clow company. The National company was organized in 1912 and its plant is at Tarrant, a suburb of Birmingham. An installation recently was added for making DeLavaud pipe. James B. Clow & Sons was organized in 1878 and has plants in Ohio. W. E. Clow Jr. is president.

* * *

C F. FICKES MACHINE CO., Akron, O., is operating in its new plant, doing cylinder regrinding and general machine work.

* * *

BRISTOL CO., Waterbury, Conn., has bought the plant and assets of the Thermo Instrument Co., Akron, O.

* * *

JOSEPH DIXON CRUCIBLE CO. has moved its Chicago office to 2003 Builders building, Wacker drive and LaSalle Street.

* * *

STONEY FOUNDRY ENGINEERING & EQUIPMENT CO., Cleveland, has moved its main office to 5101 Lakeside avenue, Cleveland.

* * *

MARTIN TRAILER O., Easthampton, Mass., is moving its manufacturing business to Westfield, Mass. It manufactures wheels, rear end assemblies and automotive trailers.

* * *

C O. BARTLETT & SNOW CO., Cleveland, manufacturer of foundry equipment and supplies, has opened a branch office at 505 First National Bank building, Chicago, in charge of S. G. Artingstall Jr.

* * *

CHARLES HARDY INC., 100 East Forty-second street, New York, has been appointed sales agent for the United States for Ruetgerewerke Aktiengesellschaft, Charlottenburg, Germany, manufacturer of various coal tar products.

* * *

LOCKE PATTERN WORKS INC., Detroit, and Ypsilanti Motor Casting Co., Ypsilanti, Mich., have been bought by the American Radiator Co. Both companies have been engaged in producing castings for the radiator company for some time.

* * *

HERTNER ELECTRIC CO., Cleveland, is adding a unit 100 x 240 feet, steel frame and sash, to increase its manufacturing space for motor generator sets for battery charging and motion picture use.

* * *

HUDSON MFG. CO., Minneapolis, has bought the business and plant of the Owatonna Metal Products Co., Owatonna, Minn. The latter will be moved to the Minneapolis plant.

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PENNSYLVANIA BRONZE & BRASS CO. INC., Philadelphia, has been formed by consolidation of the Aetna Foundry Co. and the Pennsylvania Bronze & Brass Co. Inc. Both plants will be continued.

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AMERICAN PATTERN WORKS, Canton, O., has moved to larger quarters at 214 Rex avenue N. E., to accommodate heavier production. The company manufactures patterns for J. B. Clow & Son, Newcomerstown, O., and Alliance Aircraft Co., Alliance, O.

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GREAT LAKES CHEMICAL WORKS, Detroit, has moved into its new plant, following destruction of its former plant. It is at West Jefferson avenue and Junction street. Modern equipment has been installed and production has been started on babbitt metal, solder type metal and metal oxides. Production has been doubled over previous capacity.

* * *

OLIVER MACHINERY CO., Grand Rapids, Mich., has bought the business of Butterworth & Lowe, of the same city. The latter company has manufactured band saws, and equipment for the stone and gypsum industries. These lines will be added to the woodworking and metalworking equipment made by the Oliver company.

* * *

HI-TEST BRONZE DIE CASTING CO., 900 Spalding avenue, Chicago, is being reorganized under the name of the Cromadium Corp. for the production of special steel castings under patented process. Charles Meier Sr. is acting president. P. O. Thompson is vice president and treasurer, and Carl R. Beam is vice president and secretary. H. R. Ingalls, secretary of the former Hi-Test Bronze Die Casting Co., will remain with the new corporation. The Cromadium Corp. has purchased considerable new machine tool equipment and will add four electric furnaces. As business expands the company plans to erect an addition to the north of the present plant on Spalding avenue.

* * *

J P. DEVINE CO., 1372 Clinton street, Buffalo, has been reorganized as the J. P. Devine Mfg. Co. and a substantial interest has been taken over by the Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill. The new company will continue the manufacture of dryers, evaporators, impregnators, chemical and sugar appliances. Additions are being provided to accommodate larger production. Walter C. Arthurs, president of the Mt. Vernon Car Mfg. Co., is chairman of the board, Joseph P. Devine is president, H. H. Cust vice president, Charles P. Devine vice president, C. W. Reynolds secretary, D. P. Settlemire treasurer, and Graham Devine assistant to the president and plant manager.

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B NICOLL & CO., New York, have withdrawn from the import field, to devote more attention to domestic activities. The Societe Anonyme Des Hauts-Fourneaux et Fonderies de Pont-a-Mousson will be represented by Herbert Kennedy Inc., 475 Fifth Avenue, New York. This interest has and will continue to represent the French maker in Canada and South America.

Carl G. Claussen, formerly Pacific coast manager for B. Nicoll & Co., importer of cast iron pipe, etc., has been appointed subagent for the Societe Anonyme Des Hauts-Fourneaux et Fonderies de Pont-a-Mousson for California, Oregon, Washington and the Hawaiian islands. The C. G. Claussen & Co. Inc. has been organized with C. G. Claussen, president. Headquarters have been established in the Rialto building, San Francisco, and a branch office has been opened in the W. M. Garland building, Los Angeles.

# CONSTRUCTION and ENTERPRISE

*Concise Timely Business Building Opportunities from Field of Industry*

## North Atlantic

HARTFORD, CONN.—M. S. Little Mfg. Co. is having plans made for building and equipping a complete brass foundry.

MIDDLETOWN, CONN.—Connecticut Power Co., 335 Main street, is having plans drawn for a 3-story service building 60 x 80 feet. Davis & Walldorff, 17 Whitney avenue, New Haven, are architects.

PUTNAM, CONN.—City council has voted to build a 1,000,000-gallon steel tank and lay a 12-inch water main in connection with its water supply.

WATERBURY, CONN.—Waterbury Farrell Foundry & Machine Co., 453 Bank street, will build a 2-story addition to its plant, 200 x 200 feet. F. A. Webster, 51 West Main street, is architect.

BALTIMORE—Baltimore Bottle Machine Corp., Russell and Bayard streets, has been incorporated by Walter B. Swindell Jr.

BALTIMORE—Bethlehem Shipbuilding Corp. Ltd., Bethlehem, Pa., has let contract to the Austin Co., 1015 Chestnut street, Philadelphia, for machine and fabricating shop, woodworking shop, pattern shop and control house at the ship repair plant on Key highway.

BOSTON—Duplicate Parts Co. Inc. has been incorporated with $25,000 capital to manufacture metal castings machines and machinery, by Herbert F. Robert, Elsie A. Robert and Frank B. Sparks, Malden, Mass.

BOSTON—Filter Fabrics Inc. has been incorporated with 999 shares no par value to manufacture filtering machinery and devices, by Grafton L. Wilson, president, 60 State street, Boston; Rudolf P. Berle, treasurer, and A. Thatcher.

CAMBRIDGE, MASS.—Tolmie Mfg. Co. has been incorporated with $50,000 capital to manufacture automotive parts by Edgar S. Tolmie, Beacon, N. Y.; Charles L. McHugh, Belmont, Mass,; Archbold W. Johnston, Bridgeport, Conn.

LYNN, MASS.—Lynn Ornamental Iron Works, 966 Broad street, will build a 1-story addition. Sanborn & Weed, Lynn, are architects.

MEDFORD, MASS.—Fellows Brass & Iron Foundry has been incorporated with $20,000 capital by Kate G. Fellows and Frank C. Fellows, Brookline, Mass., and Lewis S. Smith, Medford.

MILLBURY, MASS.—New England High Carbon Steel Co. will build a power house 60 x 100 feet. Carl T. Lund, president, Millbury Steel Foundry Co., is in charge.

NORTH EASTON, MASS.—Ames Shovel & Tool Co. is having plans made to build a larger plant at North Easton to concentrate its eastern production. Offices will be moved from Boston to North Easton.

BAYONNE, N. J.—Bayonne Bolt Corp., Second street, will build a 1-story plant 50 x 287 feet on West First street.

BAYONNE, N. J.—Key City Bolt & Spike Works, a recently incorporated company, is building a plant at Morris canal and Hudson boulevard. C. H. Carpenter is president and treasurer.

CARTERET, N. J.—Nizinite Metals Corp. has been incorporated with $200,000 capital by Emil Stremlau, Carteret, N. J.

CLIFTON, N. J.—Mehren Lock Co. Inc. has been incorporated with $100,000 capital and 15,000 shares no par value to manufacture locking devices by J. J. Prefladish, Clifton, N. J.

ELIZABETH, N. J.—American Copper Products Corp., Bayway, manufacturer of brass and copper wire, will build a 1-story addition to 105 x 475 feet. Wigton-Abbott Corp., 552 West Twenty-third street, New York, has general contract.

GLOUCESTER, N. J.—Empire Tool Works has leased former plant of Rogers Drill Works and will start at once manufacture of tools and mechanical devices.

HOBOKEN, N. J.—A. Nere Inc. has been incorporated with $125,000 capital to manufacture electrical motors, by James V. Bonnano, Union City, N. J.

JERSEY CITY, N. J.—Rome Bed Spring Co. has been incorporated with $5000 capital to manufacture wire springs, by Levitan, Levitan & Auerbach, Jersey City.

NEWARK, N. J.—International Metal Bed Co. has been incorporated with $125,000 capital to manufacture metal beds, by Saul and Joseph E. Cohn, Newark, N. J.

BINGHAMTON, N. Y.—Fairbanks Co., manufacturer of valves, has let contracts for three factory units to replace those recently burned. They will be 107 x 200 feet, 66 x 107 feet, and 100 x 107 feet. Concrete, brick and steel will be used. A. J. Bowie Inc., Binghamton, N. Y., is general contractor.

BROOKLYN, N. Y.—Independent Iron Works has been incorporated with $10,000 capital by Kamen & Fier, 1773 Pitkin avenue, Brooklyn.

BROOKLYN, N. Y.—National Electro Plating Works has been incorporated with $10,000 capital to conduct a metal-plating business, by H. Mandel, 350 Stone avenue.

BROOKLYN, N. Y.—Raylite Sign Co. has been incorporated with $5000 capital to manufacture advertising signs by M. Hochmann, 2 Lafayette street, Manhattan.

BROOKLYN, N. Y.—Frost Wrought Iron & Steel Works has been incorporated with $5000 capital to manufacture iron and steel products by P. H. Weiss, 38 Park Row, Manhattan.

BROOKLYN, N. Y.—Kernard Mfg. Corp. has been incorporated with $10,000 capital to manufacture machinery, by Jonas & Neunberger, 115 Broadway, New York.

BROOKLYN, N. Y.—Marnall Steel Products has been incorporated with $10,000 capital to manufacture motors and engines, by G. Hoerner, 220 West Forty-second street, Manhattan.

BROOKLYN, N. Y.—Decorated Metal Mfg. Co., 199 Sackett street, E. H. Thatcher manager, has let general contract to Barney-Ahlers Construction Corp., 110 West Fortieth street, New York, for a factory and warehouse addition, six stories.

BUFFALO—Cole-Naylor Mfg. Co. has been incorporated with $50,000 capital to manufacture products of bronze and brass, by Morey & Schlenker, Buffalo.

BUFFALO—Bingham & Taylor Corp. has been incorporated with $150,000 capital and 1500 shares no par value to operate a general foundry business by Botsford, Mitchell, Albro & Weber, Buffalo.

CORNING, N. Y.—Standard Mfg. Co. has been incorporated with $50,000 capital to fabricate structural steel work, by F. C. Williams, Corning.

LONG ISLAND CITY, N. Y.—Smith-Hamburg-Scott Welding Co., Marion place, has bought a site 100 x 102 feet and will build plant that size for its own use.

NEW YORK—Hoist & Crane Engineering Co. has been incorporated with $20,000 capital by H. E. Cecil, 120 Liberty street.

NEW YORK—Ames Mfg. Corp. has been in-

## Resale News

PLANT of the Ashland Steel Co., Ashland, Ky., has been sold at public auction to John Russell, Ashland, for $4,176,000. It included the rod mill, wire mill, steel plant, offices and ten and a half acres.

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Property formerly occupied at Parkesburg, Pa., by the Parkesburg Iron Co., which has been idle recently, has been bought by George F. Pettinos, 1206 Locust avenue, Philadelphia, manufacturer of foundry supplies. The plant includes about two acres. It will be put in operation at once.

* * *

Machinery, equipment, dies and fixtures of Edward V. Hartford Inc., Jersey City, N. J., were sold at auction June 27 by the Industrial Plants Corp. About 250 machines were included in the sale.

## Sales Calendar

*July 8—Plant and equipment of Warren Iron & Steel Co., Warren, O., at public auction.*

corporated with $10,000 capital to manufacture signs by H. L. Kramer, 299 Broadway.

NEW YORK—Marion Steamfitting Co. has been incorporated with $20,000 capital to build steam generating and transmitting equipment, by M. A. Haas, Manhattan.

NEW YORK—Digit Mfg. Co. has been incorporated with 1000 shares no par value to manufacture electrical appliances, by S. S. Menken, 52 William street.

NEW YORK—Stabilized Spring Co., 2241 Fifth avenue, has been incorporated with $24,000 capital to manufacture automobile springs and other devices.

NEW YORK—Lion Lectrolier Fixture Co. has been incorporated with $10,000 capital to do electrical work, by Panken & Levy, 225 Broadway.

NEW YORK—Ajax Mill Corp. has been incorporated with 250 shares common stock, no par value, to manufacture and sell machinery by F. B. Lent, 305 Convent avenue.

NEW YORK—Yarmak Electric Equipment Co. has been incorporated with $10,000 capital to manufacture machinery, by A. Beur, 205 Broadway.

NEW YORK—General Cable Corp., Graybar building, is having plans prepared for the erection of a wire and cable plant in Mobile, Ala. No contracts have yet been placed.

NEW YORK—Schill & Burford have been incorporated with $50,000 capital to manufacture machinery, by J. A. Bloom, 46 Lawrence street, Brooklyn, N. Y.

NEW YORK—Century Oil Heating Co. has been incorporated with $10,000 capital to manufacture oil burners, by W. T. Cowin, 189 Montague street, Brooklyn, N. Y.

NEW YORK—Mavis Machine Corp. has been incorporated with $3000 capital to manufacture tools, by H. H. Lippold, 50 Broadway, and associates.

NEW YORK—Ensign Reynolds has been incorporated with $250,000 capital to manufacture oil burning devices, by Sherman & Sterling, 55 Wall street.

NEW YORK—Radium Sign Corp. has been incorporated with $20,000 capital to manufacture signs and other advertising devices, by J. L. Shapiro, 277 Broadway, and associates.

NEW YORK—Vending Corp. of New York has been incorporated with $20,000 capital to manufacture vending machines, by Engelson & Miller, 475 Fifth avenue.

NEW YORK—Tudor Lighting Supplies has been incorporated with 60 shares common stock to manufacture gas fixtures and similar products, by W. Rabinowich, 55 West Forty-second street.

ERIE, PA.—J. A. Zurn Mfg. Co. will build a foundry 122 x 222 feet, pattern storage 40 x 40 feet, machine shop 152 x 282 feet, boiler house 40 x 40 feet.

HOLMESBURG, PA.—Precision Grinding Wheel Co. will build a 1-story addition to its plant on Torresdale avenue.

HOMESTEAD, PA.—Homestead Valve Mfg. Co., Sixth avenue, will build a 1-story addition to its foundry and make alterations in present plant.

PHILADELPHIA—Overbrook Steam Heat Co., Upland and Woodbine avenues will build an addition to its power house and install additional boilers and equipment.

PHILADELPHIA—J. Struthers Dunn & Co. Inc. has been incorporated with 22,000 shares no par value to manufacture mechanical devices, by J. Struthers Dunn, 112 East Gowan avenue.

PHILADELPHIA — Proctor & Schwartz, Seventh and Tabor streets, machinery manufacturers, will build a 2-story addition 50 x 145 feet.

PITTSBURGH—Von Broco Steel Plate Engraving Co. has been incorporated to manufacture steel plates and dies by Karl S. Von Senden, Andrew H. Brown and W. W. Booth. Reed, Smith, Shaw & McClay, 747 Union Trust building, are attorneys.

PAWTUCKET, R. I.—Collyer Insulated Wire Co. will erect a 3-story addition, 80 x 105 feet, to its plant here.

PROVIDENCE, R. I.—General Sheet Metal Works Inc. has been incorporated to manufacture sheet metal products and cornices, by David Jaffe, Max Wexler and Philip Wexler, Providence.

# East Central

AURORA, ILL.—Richsto Metal Trim Co., 678 Douglas avenue, has been incorporated with $65,000 capital and 1300 shares no par value to manufacture metal trim of all kinds, by Walter H. Eckert, Thomas Leeming and William U. Bardwell. Loucks, Eckert & Peterson, 10 South La Salle street, Chicago, are correspondents.

BLOOMINGTON, ILL.—Ty-Press Appliance Co. Inc., 401 East Washington street, has been incorporated to manufacture pressing and cleaning machinery by Sumner Goodfellow, Cozy Goodfellow and J. L. Murray. Egbert B. Hawk, 227 Unity building, Bloomington, is correspondent.

CHICAGO—Chicago Metal Spinning Co., 1715 Walnut street, will build a 2-story plant 38 x 51 feet. The Austin Co. is architect and general contractor.

CHICAGO—Belmont Sheet Metal Works, 2341 Belmont avenue, H. R. Anderson manager, is building a 1-story plant at 2328 Nelson street. Regan Construction Co., 228 North LaSalle street, has general contract.

CHICAGO—Masters Planter Co., 800 North Clark street, manufacturer of tractors and agricultural implements, is building a 1 and 2-story plant, 75 x 125 feet, at 4910 Grand avenue.

CHICAGO—American Forge Co., care G. F. Argetsinger, 332 South Michigan boulevard, president, is taking bids on an addition, 60 x 80 feet and 50 feet high. Granger & Bollenbacher, 333 North Michigan avenue, are architects.

CHICAGO—Commercial Light Co., 841 West Washington boulevard, has been incorporated with $50,000 capital to build and maintain lighting system, by Marion Halperin, Michael R. Fine, and William Halperin. Ringer, Wilhartz & Hirsch, First National Bank building, are correspondents.

CHICAGO—Ever Brite Sign Co., 2122 Lawrence avenue, has been incorporated with $12,500 capital to manufacture advertising signs of all kinds, by Victor V. Vlachia, Jeanette Grossman, and Donald V. Seeley. Frank Pasvic, 69 West Washington street, is correspondent.

CHICAGO—Motograph Corp. of America, 469 East Ohio street, has been incorporated with 40,000 shares no par value to manufacture electrical devices and advertising signs, by Harry B. Barker, H. G. Forde and G. Fried. Sonnenschein, Berkson, Lautman & Levinson, 77 West Washington street, are correspondents.

CICERO, ILL.—Chicago Rivet & Machine Co. has increased capital stock from 2500 shares to 500,000 shares no par value and increased directors from 5 to 7. Enlargement of operations is planned.

EAST PEORIA, ILL.—Caterpillar Tractor Co., B. C. Hancock, Washington street, manager, is building a 1-story and basement addition 163 x 612 feet.

NORTH CHICAGO, ILL.—C. P. Henry Novelty Co., Twenty-second street, is taking bids on the general contract for a 1-story brick plant, 50 x 200 feet. Ball Engineering Co., 1744 Sheridan road, is structural engineer.

NORTH CHICAGO, ILL.—Chicago Hardware Foundry Co. has outlined program of additions and improvements to plant here and at Elkhart, Ind. One foundry is to be made continuous pouring. Core room and pattern room are to be added at Elkhart. Large polishing machines and equipment for wet porcelain enamel will be added there.

ROCKFORD, ILL.—Rockford Malleable Iron Co. will build additions to its foundry plant to accommodate enlargement following absorption of Northwestern Malleable Iron Co. of Milwaukee.

INDIANAPOLIS, IND.—Crown Machine Co., Earl Little, president, suffered a loss by fire, to building and equipment.

LAPORTE, IND.—U. S. Slicing Machine Co., G. E. Elshout secretary, 333 Carson street, has plans under way by Frank D. Chase Inc., 720 North Michigan boulevard, Chicago, for a 1-story plant.

DETROIT—Fruehouf Trailer Co., 10940 Harper street, A. C. Fruehouf president, is taking bids on a 1-story addition to its plant.

DETROIT—Briggs Mfg. Co. has taken a permit for construction of a 5-story manufacturing building and a mill building, as additions to the Mack-Warren-Gladwin group.

DETROIT—Packard Motor Car Co., A. Maccauley, president, 1580 East Grand boulevard, has had plans made for a foundry addition, one story.

DETROIT—United States Gypsum Co., C. L. Avery president, 300 West Adams street, Chicago, has plans in progress for a plant for which financing is now being arranged, to be built this summer.

DETROIT—General Motors Corp., H. G. Hickey in charge, tenth floor General Motors building, has let general contract to E. Winters, 1651 East Grand boulevard, for an 11-story research laboratory and garage building.

DETROIT—Pressed Steel Engineering Co. has been incorporated with $50,000 capital to do general manufacturing in metals by M. E. Tobeler, 5736 Hastings street, John J. Kline and Richard Baumgartner.

DETROIT—U. S. Universal Joints Co., General Motors building, has been incorporated with

10,000 shares no par value to manufacture automobile parts and machinery, by Fred M. Guy, 2196 Montclair avenue, Howard Streeter and Trevor G. Murton.

DETROIT—R. W. Crane Co. Inc., Great Lakes warehouse, Wabash and Baker streets, has been incorporated with $25,000 capital to manufacture and sell thermostatic controls for heating plants, by Edward R. Steis, 2258 West Grand boulevard, Herbert G. Jensen and Ralph W. Crane.

MUSKEGON, MICH.—Michigan Foundry Supply Co. has been incorporated to deal in iron, steel and metallic scrap and waste materials, by Norman H. Wiener, 510 Irwin avenue, Detroit, William J. Kearney, Albion, Mich., and Paul Wiener.

CINCINNATI—R. & H. Body Co. has been incorporated with 1000 shares no par value by Theodore E. Reynolds, Ernest H. Havers and Oberst Burbank.

CLEVELAND—Ideal Ventilator Co. has been incorporated with 1000 shares no par value by J. F. Rybak, H. A. Brooks and B. J. Landau.

CLEVELAND—Midland Steel Products Co. is having plans made for remodeling and enlarging its plant at Detroit to concentrate its brake manufacturing department in one plant.

LIMA, O.—Ohio Steel Foundry Co. has broken ground for an addition 50 x 200 feet to its steel foundry. H. K. Ferguson Co., Cleveland, has the general contract. John Galvin is president.

MIDDLETOWN, O.—Mokry-Tesmer Machine Co. suffered loss from fire in its plant, which will be replaced.

SHELBY, O.—Ohio Seamless Tube Co. will build additional plant units to accommodate increased airplane and automotive business. Additions will include new boiler house, additions to pickling department, 25 additional benches for manufacture of airplane tubing and two or three new cranes.

PARKERSBURG, W. VA.—Universal Glass Products Co. has let contract to the Plate Construction Co. for a steel and concrete addition to its plant.

APPLETON, WIS.—Appleton Machine Co., 618 South Oneida street, closed bids June 26 for the construction of a new $75,000 foundry building. Plans are by W. F. Dolke, consulting engineer, Evanston, Ill.

APPLETON, WIS.—Appleton Machine Co., 618 South Oneida street, W. Fred Dalke owner, 1841 Asbury street, Evanston, Ill., will build a foundry, 100 x 130 feet as an addition to plant.

KENOSHA, WIS.—Architect John D. Chubb, 109 North Dearborn street, Chicago, has been ordered to make final plans for the proposed new $350,000 Lincoln junior high school by the Kenosha board of education, Ella F. Powers, secretary. Bids probably will be taken early in August.

KOHLER, WIS.—Kohler Co., F. Brotz manager, will build a 1-story addition to its plant. R. Phillips, 405 Broadway, Milwaukee, is architect.

MILWAUKEE—Allis-Chalmers Mfg. Co. is successful bidder for furnishing the village of Niles Center, Ill., three centrifugal pumping units, of 2000, 1250 and 1000 gallons capacity, and one manual and one automatic control for a 750-gallon pump.

MILWAUKEE—Capitalization of the Pelton Steel Casting Co., Chicago road and Elliott place, has been increased from $50,000 to $200,000. The concern is planning to enlarge its capacity, but no details have been divulged. A. J. Ehne is president.

RACINE, WIS.—Bids close about July 15 for the erection of a 1-story brick and steel addition, 74 x 74 feet, to the gray iron shop of the Armstrong Foundry Co. at 1530 Junction avenue. Architect J. Mandor Matson is completing plans and will take bids July 2.

RACINE, WIS.—A. H. Schafer, secretary of the board of education, is taking bids until June 27 for science material, metalworking lathes, lockers, etc., for both the new Washington Park and William Horlick high schools.

RIPON, WIS.—Architects Auler & Jenson, Oshkosh, Wis., are awarding contracts for the erection of a $25,000 garage and repair shop, 40 x 125 feet, for Biegick Bros. of this city.

## West Central

CLINTON, IOWA.—Lubbers & Bell Mfg. Co., 200 North Second street, manufacturer of hardware specialties, will build a 1-story plant 84 x 160 feet. A. N. Morrell, Clinton, is architect.

DUBUQUE, IOWA—Adams Co., 111 West Sixth street, manufacturer of machine tools, will build a 1-story addition 80 x 220 feet for foundry and machine shop. W. L. Yokom, 730 Main street, has general contract.

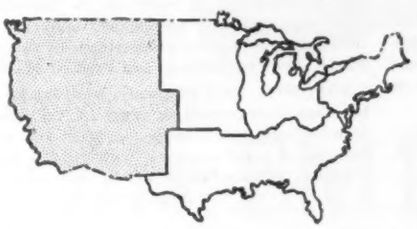
SIOUX CITY, IOWA—Iowa Foundry Co., Cook and West Second streets, will build a 1-story machine shop 50 x 63 feet.

WATERLOO, IOWA—Deere & Co., care A. H. Head, 504 Third avenue, Moline, Ill., is taking bids on a 6-story factory addition.

DULUTH—Zenith Furnace Co., operator of a blast furnace and coke plant, is building a new coal dock and dismantling its former coal-handling facilities. Whitney Bros. Co. is contractor. Two coal-handling bridges are being added.

ST. LOUIS—Vet Corp. has been incorporated to build gas generators, smoke abaters and similar devices, by Sidney J. Seligstein, 6300 Enright street.

OMAHA, NEBR.—Paxton Mitchell Co., Martha and Twenty-seventh streets, is building a foundry plant 93 x 160 feet. The Austin Co., 510 North Dearborn street, Chicago, is architect and general contractor.



## Western States

LOS ANGELES—Lockheed Aircraft Co., Empire avenue, Burbank, Calif., will build an addition 50 x 200 feet to its plant for an assembly shop and paint department.

MONTICELLO, CALIF.—Cochise Rock Drilling Mfg. Co., manufacturer of pneumatic drilling machinery, is building a plant consisting of a machine shop 150 x 200 feet, a blacksmith shop 100 x 100 feet, and a warehouse and office building. Charles A. Hultquist is president and general manager. William P. Neil Co. has the general contract.

HELENA, MONT.—Montana Southwestern railroad has been incorporated to build 50 miles of railroad in Beaverhead county, by A. A. Major, L. E. Harris, and W. S. Stam, of Lewis and Clark county, and W. E. Allen and A. H. McCortney, of Beaverhead county. The same men have formed the Boston-Montana Mines Co., capital $9,500,000, and the Boston-Montana Mills Co., capital $500,000. Offices of the three companies will be established at Helena.

## Southern States

FAYETTEVILLE, ARK.—University of Arkansas, J. C. Futrall president, has let contract to Truscon Steel Co., St. Louis, for rebuilding shops on campus, to replace those recently burned. Equipment costing $16,000 has been bought.

NEWPORT, ARK.—Newport Machine Works Inc. has been incorporated with $10,000 capital by James B. Higgins and associates.

TAMPA, FLA.—Triangle Metals Corp. has been incorporated with $25,000 capital by William Bass, 206 West Cayuga street, to work in iron, zinc and other metals.

ASHLAND, KY.—Safety Automatic Gate Co. has been incorporated with $50,000 capital to manufacture safety appliances, by Henry Clagg and Edwin Fannin.

LOUISVILLE, KY.—Brandeis Machinery & Supply Co., 325 West Main street, will build a brick and steel office and warehouse building, Brook street and Brandeis avenue.

ASHEVILLE, N. C.—Eanes Mfg. Co. has been incorporated with $200,000 capital to develop and manufacture knotters and other textile devices, by H. P. Eanes, 10 Manly avenue, Woolsey, N. C., and others.

MIAMI, OKLA.—St. Louis Smelting Co. is having plans made for a zinc concentrating plant of 500 tons capacity.

TULSA, OKLA.—American Oilfield Tool Co.

has been incorporated with $100,000 capital to manufacture tools for oil field use, by W. W. Jamar, 2023 East Thirteenth place.

GREENVILLE, S. C.—Southern Metal Novelties Co. has been incorporated by W. W. McIver, 40 Tindal avenue.

SPARTANBURG, S. C.—Standard Looms Inc., 519 East Main street, Isaac Andrews, president, has bought a site on Fernwood farms, East Spartanburg, for its new plant to cover 10 acres, including machine shops 70 x 700 feet and foundry 80 x 300 feet. (Noted Moy 3.)

CHATTANOOGA, TENN.—West Construction Co., Volunteer Life building, has bought a site of four acres and will build a plant for the manufacture of machinery for production and laying of asphalt.

CHATTANOOGA, TENN.—Hedges-Walsh-Weidner Co. has been incorporated with $1,500,000 capital and 45,000 shares no par value, to manufacture boilers and similar products, by M. M. Hedges, L. H. McGowan and C. P. Llewellyn.

BEAUMONT, TEX.—Ginsburg Iron & Supply Co. has been incorporated with $10,000 capital by Abram S. Ginsburg, B. Ginsburg and Abe Lewis.

DALLAS, TEX.—Refinery Casting Corp. will build a plant of steel and concrete.

HOUSTON, TEX.—Standard Oil Field Supply Co. has bought a site for a plant and warehouse, 60 x 250 feet, steel frame and corrugated sheet sides.

HOUSTON, TEX.—Reed Roller Bit Co., Mack street and Avenue Q, has let contract to Houston Structural Steel Co., 3910 Washington street, for a 1-story machine shop 74 x 100 feet, saw-tooth roof.

LYNCHBURG, VA.—Dixie Aircraft Corp. has bought 167 acres for an airport and will build plant for manufacture of small airplanes.

## Canada

ACTON, ONT.—Beardmore & Co. will build an addition to its factory here, the building to be 1-story, 125 x 225 feet.

PRESTON, ONT.—N. O. Hipel Ltd., is making arrangements for the erection of a manufacturing plant here.

TORONTO, ONT.—Herod Construction Co. Ltd. has been incorporated with $40,000 capital, by Arthur G. S. Wartman, Henry B. Gardner, and Frederick H. Roberts.

TORONTO, ONT.—P. Lyall & Sons Construction Co. Ltd. have been awarded the contract for the construction of a shop for the Canadian National railroad.

TORONTO, ONT.—J. W. Butler Co. Ltd. has been incorporated to carry on the business of structural, civil and mechanical engineer, with 100,000 shares no par value stock, by John W. Butler, Jerry C. William, and Fred H. M. Irwin.

TORONTO, ONT.—Mahaffy Iron Works Ltd. has been incorporated to carry on the business of brass and iron founder, engineer and manufacturer of metal products, with $40,000 capital, by Helen Dawson, Edith Verity, and Lena Duff.

TORONTO, ONT.—Bulk tenders are being received by J. R. W. Ambrose, chief engineer, Toronto Terminal Railways, New Union station, for construction of a central power plant here for the Canadian National and Canadian Pacific railways. Building will be 65 x 200 feet, steel and brick.

TORONTO, ONT.—Dominion Timbers Ltd. has purchased from the Toronto harbor commission, a site on the ship channel near Bouchette street, where it plans timber and lumber yards and a factory. Several buildings will be erected and machinery purchased. The engineer has not yet been appointed.

WINDSOR, ONT.—H. A. Brown, vice president and general manager of General Motors of Canada Ltd., Oshawa, Ont., has announced plans for erection of addition here for the production of cab and car bodies.

MONTREAL, QUE.—E. G. M. Cape Co., 10 Cathcart street, general contractor, has let a number of sub-trades in connection with $250,000 factory addition for Simmons Ltd., 400 St. Ambroise street. Architects, Ross & MacDonald, 1 Belmont street.

REGINA, SASK.—General Motors of Canada Ltd., Oshawa, Ont., has announced it will start work at once on a $1,000,000 manufacturing and assembly plant here. Hutton & Souter, architects, Hamilton, Ont., are preparing plans. The assembly plant will be 400 x 800 feet; office building, 50 x 200 feet, 3 stories; power plant, 80 x 80 feet. Tenders will be called at once for completion by Dec. 1.

VANCOUVER, B. C.—British Columbia Electric Railway Co. has awarded the contract for the first unit of the Hastings steam plant for generating electrical power, to C. M. Moore & Co. The plant will have a 20,000-kilowatt turbo-generating unit.

# New Trade Publications

COLD ROLL FORMING—Kane & Roach, Syracuse, N. Y., has issued a bulletin describing and illustrating its cold roll forming machine to increase quality and reduce production cost. One type of its machines is illustrated.

LINE PIPE—Otto Kafka, Neils Esperson building, Houston, Tex., describes his slipjoint line pipe for gas and oil installations in a current bulletin. Tests of the pipe and its joints are described.

VALVES—International Oxygen Co., Newark, N. J., describes in a current bulletin its packingless valve. A sectional view shows its construction and the text describes the features making it efficient.

AIR COMPRESSOR—Sullivan Machinery Co., Chicago, has issued a bulletin describing its angle compound air compressor. It is uniform with other bulletins of this company and shows the compressor, its parts and accessories. Operation of the compressor is explained in the text.

ALLOY STEEL—International Nickel Co., New York, is circulating a bulletin devoted to consideration of alloy steel for boiler construction. Illustrations include graphic representations of various data, bend tests and similar factors involved in steel used for this purpose.

COKE BY-PRODUCTS—Semet-Solvay Engineering Corp., New York, shows in a current bulletin an installation producing motor fuel from light oils resulting from coke manufacture. Exhaust steam is used and great economies are claimed.

ELECTRIC SWITCHES—Electric Controller & Mfg. Co., Cleveland, is issuing a bulletin on one of its types of across-the-line switches, with overload protection and positive single phase protection. It is illustrated to show installations and its action is described.

INSULATION—Celite Products Co., Los Angeles, has issued a bulletin on use of its products for insulating breechings and stacks in power plants. Specifications are given for inside and outside lining and drawings show methods to be followed in applying the insulation.

LUBRICATION—E. F. Houghton & Co., Philadelphia, has prepared a booklet on combination lubrication for safety and economy. Oils and lubricating devices are described and illustrations show installation on various equipment.

SLITTING MACHINE—Torrington Mfg. Co., Torrington, Conn., is distributing a bulletin featuring slitting and coiling machines and one on flattening machines, each illustrated and containing engineering data and specifications relating to the machines.

ALLOY CASTINGS—Sivyer Steel Castings Co., Milwaukee, in the current number of its reports stresses the value of alloys made in the furnace rather than in the ladle, for uniform dependable metal. Physical properties of various annealed and heat treated castings are given in tabular form.

INDUSTRIAL HANDLING—Cleveland Electric Tramrail, division of the Cleveland Crane & Engineering Co., Wickliffe, O., has issued a bulletin devoted to proving that proper handling will produce more castings per dollar. It is a series of illustrations showing installations for economical handling of materials and products of foundries.

CONCRETE BARS—Concrete Steel Co., New York, has issued a booklet devoted to its reinforcing bars and other building products. The company's plant and equipment are shown in illustrations and described, its engineering service noted and the various products illustrated. Much space is devoted to data of value to the engineer and builder. Methods of erecting materials are shown.

CONVEYING MACHINERY—Link-Belt Co., Chicago, has issued a new catalog of all its products. A large quantity of engineering data, list prices and illustrations of parts and installations are included. The book contains 1088 pages and covers completely the chain, sprocket, power transmission, elevating and conveying and engineering division of the company's business.

ELECTRIC HEAT—Cleveland Electric Illuminating Co., Cleveland, is circulating a booklet devoted to electric heat in the industries of its field. It is largely made up of illustrations, to show the wide application and easy utilization of electricity for heat in industrial operations. Attention is called to the company's engineering service, which assists users in obtaining fullest benefits from use of electric current. Advantages of heat from this source are listed.

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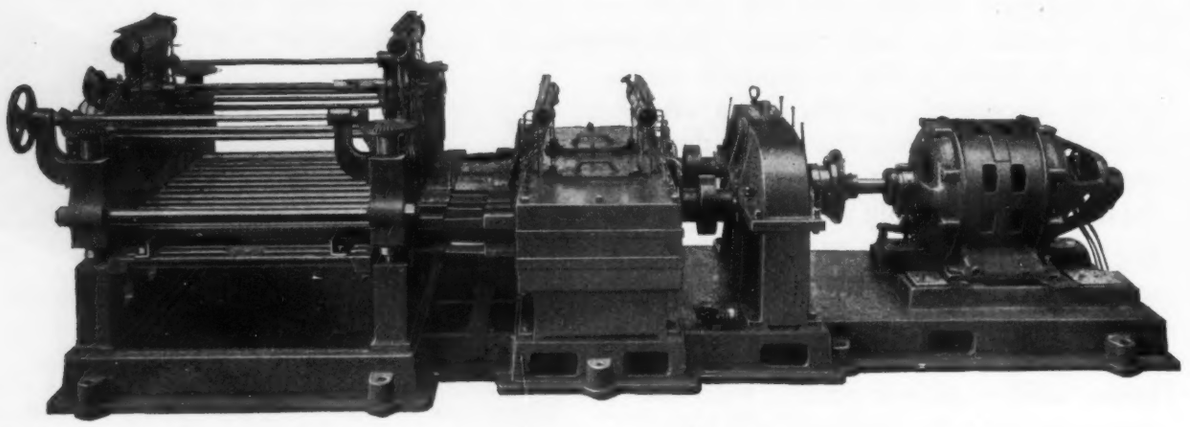

*Motor shown on this cut is a temporary set-up.*

**An entirely new principle of flattening sheets, which produces results never before obtained.**

The sheet after passing through this machine is absolutely flat both lengthwise and crosswise. Besides its patented features, the Sutton Engineering Company No. 2-B 60" machine is the most up to date leveller built, furnished with either high carbon forged or hardened and ground steel rolls. Independent adjustments for eliminating dish. Also two additional top rolls have independent adjustment for obtaining additional deflection at these points. The pinch rolls and leaving top roll also are independently adjustable. Gears in primary drive are steel cut tooth herringbone. Gears in secondary drive are high grade heat treated cut tooth herringbone. All gears are enclosed in oil tight housings. Machine equipped with oil reservoir and pump for maintaining a flow of oil on the sheets. Main drive through two shafts to divide load. All connections by means of Flexible Couplings. Lunkenheimer sight feed Gravity lubrication to all possible points. Alemite and single unit sight feed at other points.

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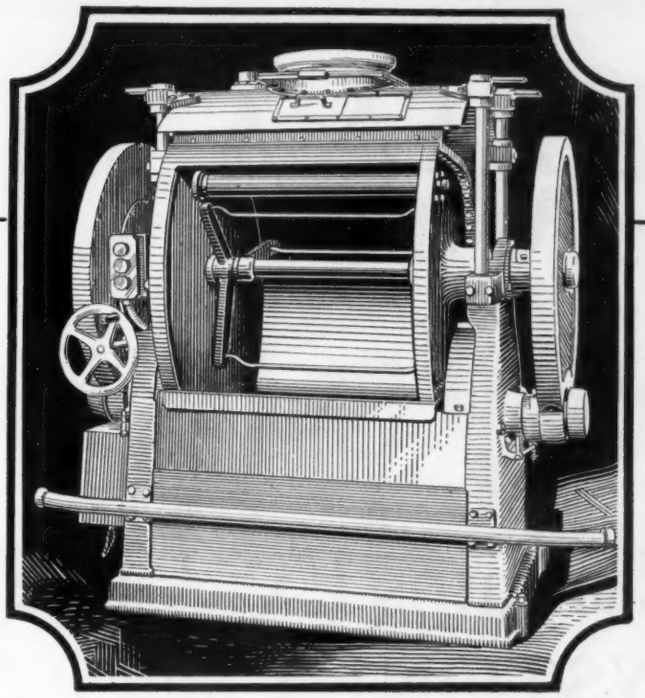

*This dough mixer is typical of machinery requiring shafting of extreme accuracy*

# Shafting *of Highest Attainable Accuracy in Size and Roundness*

PRODUCED by the turning process Union Precision Shafting is free from all strains which might cause warpage or distortion. The bars are true to size including the out-of-round dimension. They are made straight to precision by special machinery and finally ground and polished to a bright, mirror-like, flawless surface.

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Formed Products
Tin and Terne Plates
Black Plate, Etc.

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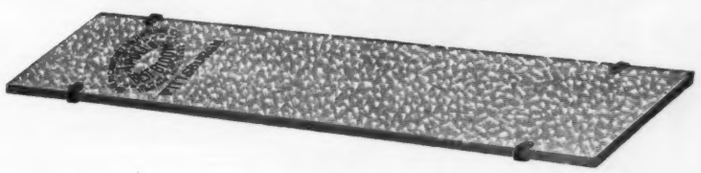
# Black and Galvanized SHEETS

## Tin and Terne Plates, Etc.

*For all known purposes*



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AMERICAN Products have back of them a service and reputation for trustworthiness known to all buyers and users of sheet metal. Our experienced organization is lending every effort to serve consumers with sheet steel products which have quality well wrought in, and likewise conscientiously maintained. Your requirements will be made our special interest.

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Corrugated Sheets
Formed Products
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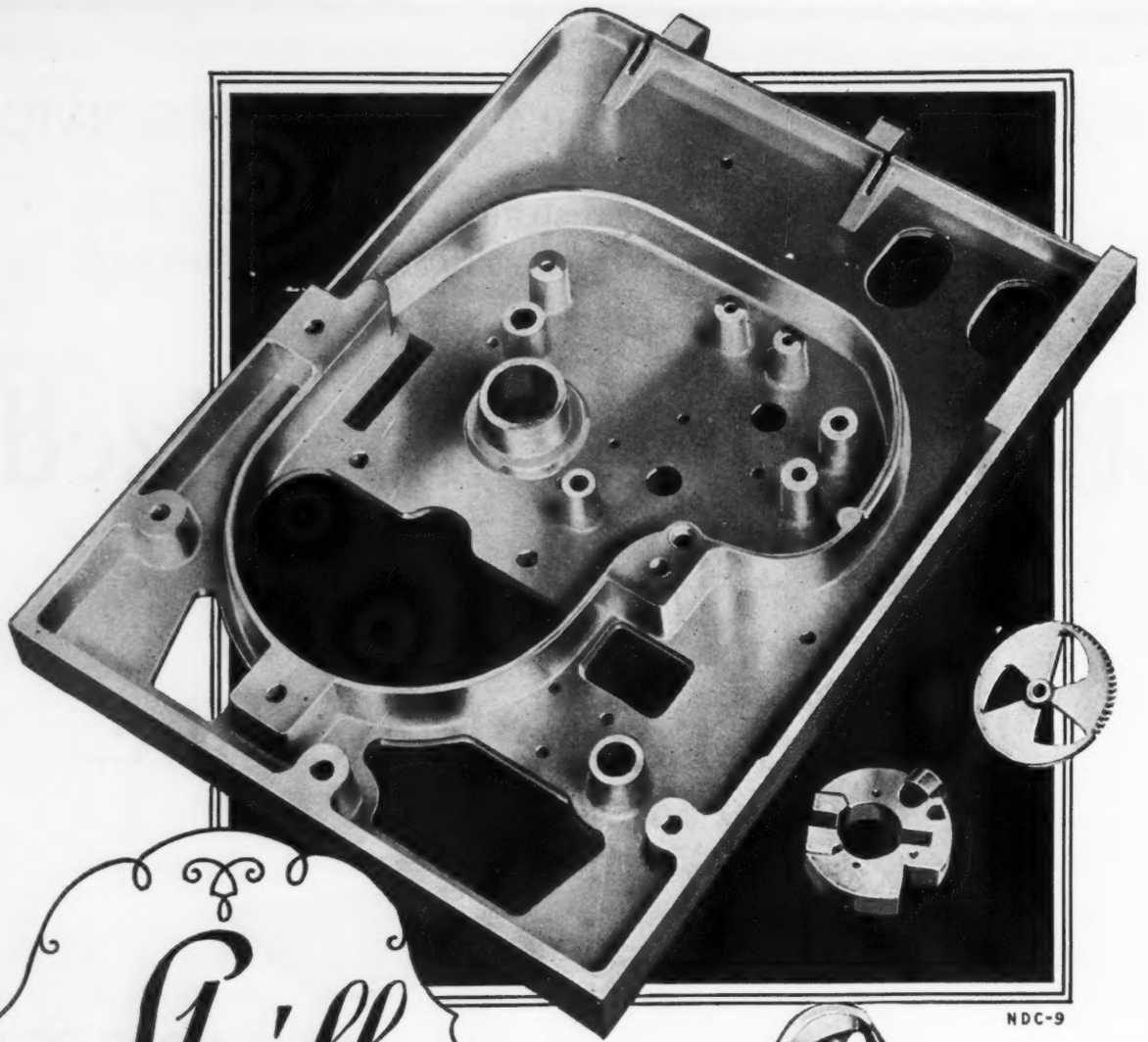



# Skill

METALS of finest quality—equipment of most-up-to-date completeness—these are of little worth except as knowledge and judgment and experience combine to utilize them to best advantage—and for the customer's benefit. Newton Die Castings have—mingled with fine metal and fine workmanship—the skill which is compounded of knowledge and judgment and experience.

ND-9

## THE NEWTON DIE CASTING CORPORATION

146 MUNSON ST. NEWTON NEW HAVEN NEW HAVEN, CONN.

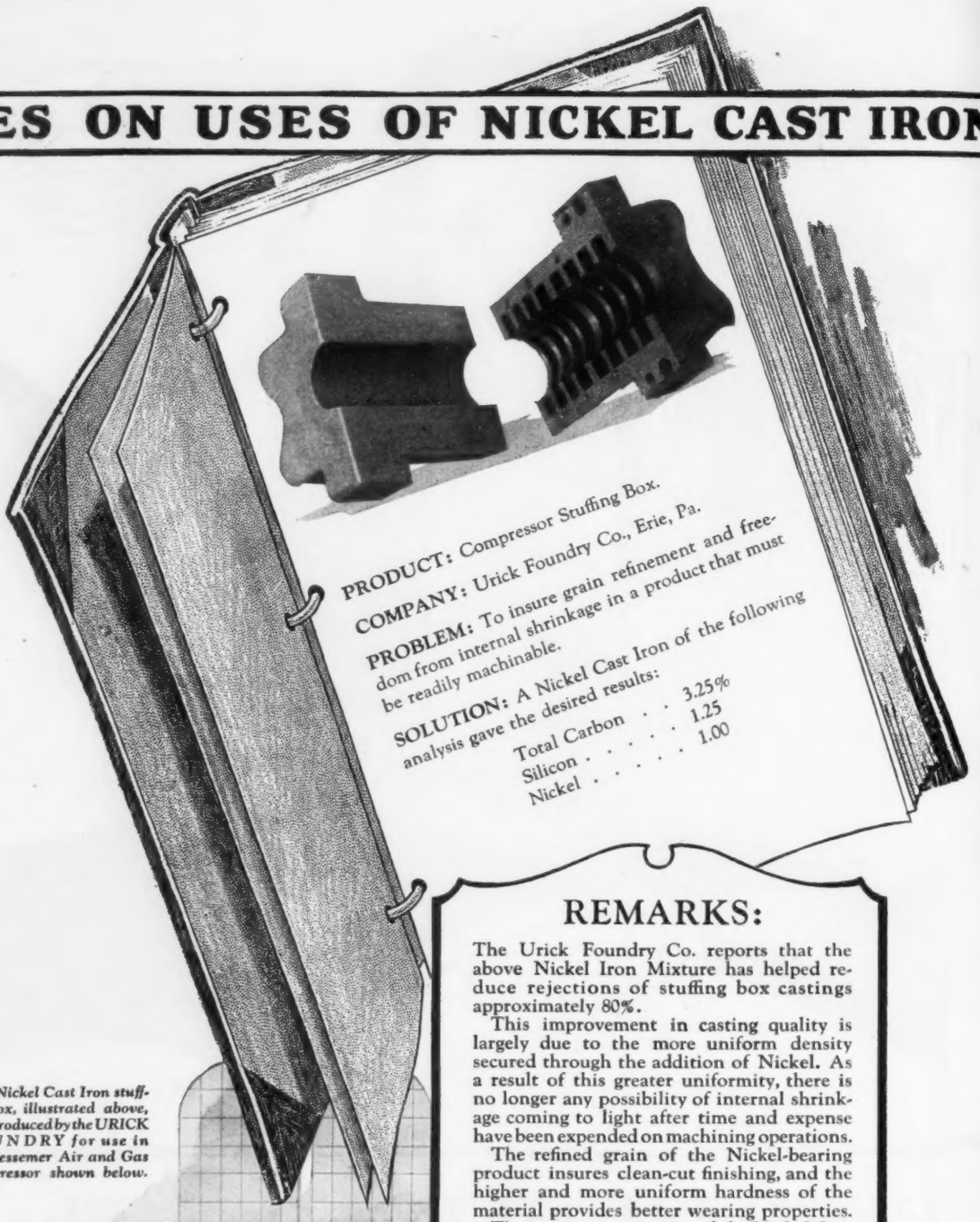
# Empire Metal Furniture Sheets

MANUFACTURERS of Metal Furniture find in Empire Steel Sheets all the essentials of quality that enable them to build beauty, durability and expert craftsmanship into their products. No matter whether your requirements are large or small, usual or unusual, you'll find it well worth while to discuss them with an Empire sales engineer.

## Empire Steel Corporation, Mansfield, O.

SALES OFFICES: New York, Philadelphia, Cleveland, Indianapolis, Cicero (Suburb of Chicago), Detroit, St. Louis

# NOTES ON USES OF NICKEL CAST IRON



**PRODUCT:** Compressor Stuffing Box.

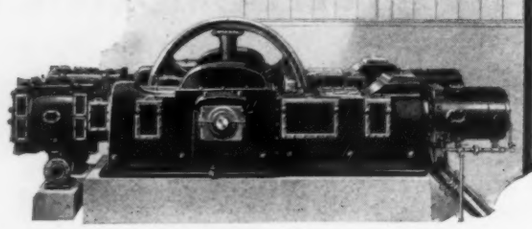
**COMPANY:** Urick Foundry Co., Erie, Pa.

**PROBLEM:** To insure grain refinement and freedom from internal shrinkage in a product that must be readily machinable.

**SOLUTION:** A Nickel Cast Iron of the following analysis gave the desired results:

| | |
|---|---|
| Total Carbon | 3.25% |
| Silicon | 1.25 |
| Nickel | 1.00 |

*The Nickel Cast Iron stuffing box, illustrated above, was produced by the URICK FOUNDRY for use in the Bessemer Air and Gas Compressor shown below.*



## REMARKS:

The Urick Foundry Co. reports that the above Nickel Iron Mixture has helped reduce rejections of stuffing box castings approximately 80%.

This improvement in casting quality is largely due to the more uniform density secured through the addition of Nickel. As a result of this greater uniformity, there is no longer any possibility of internal shrinkage coming to light after time and expense have been expended on machining operations.

The refined grain of the Nickel-bearing product insures clean-cut finishing, and the higher and more uniform hardness of the material provides better wearing properties.

The superior properties of the Nickel Cast Iron have made it possible to meet consistently the 300 lb. pressure operating requirement to which this stuffing box is subjected.

*Our foundry specialists will gladly discuss your casting problems with you.*

INCO NICKEL TRADE MARK

# Nickel

THE INTERNATIONAL NICKEL COMPANY (INC.) 67 WALL STREET, NEW YORK, N. Y.

Maintenance !
Maintenance !
Maintenance !
No wonder you begrudge this constant expense
See other side ~

# Do You Know How Much *Maintenance* Costs You?

EVERY man who has charge of a plant (or owns one) knows what the roof of any one of his buildings cost him at the start. Or the sidewalls. It is a definite figure that goes on the books.

But amazingly few men ever get a clear picture of what it costs them to MAINTAIN those roofs or sidewalls. That cost is entered under a score of items . . . paint . . . supplies . . . labor . . . general expense . . . anything.

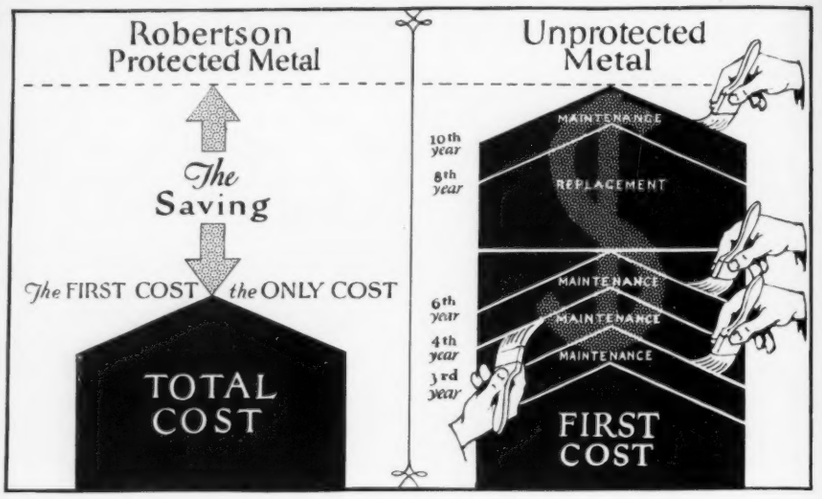
The result is that *maintenance expense can pile up tremendously before anyone is conscious of where the money is going.*

Thus, many men go on buying *unprotected* corrugated roofing and siding merely on the basis of first cost. They never get a chance to recognize the money it costs them later for paint. Or for new material to replace corroded sheets. Or for painters' wages and erectors' wages.

They never see the constant dribble of expense which, in the end, makes that low-cost material much more expensive than a truly permanent material like RPM (which never requires maintenance of any kind).

But things are changing.

More and more plants are keeping accurate maintenance records . . . charging every gallon of paint, every sheet of replacement, every day of workmen's time against the roof that caused the expense. And these records are a revelation. Read the actual case in the next column.




# A Great Steel Company Made This Analysis of RPM's Economy . . . .

STUDY the above chart for a moment. It is based upon the actual cost records of one of the greatest steel companies in the country. That company wanted to KNOW what its roofs and sidewalls cost.

Over a 10-year period, it found that RPM (Robertson Protected Metal) went on delivering splendid service without one cent of maintenance. (See the chart). And it found, on the other hand, that unprotected metal had to have continuous maintenance . . . painting inside, painting outside . . . and finally complete replacement.

In the end, the unprotected metal (which had cost less than RPM in the beginning) cost far more than RPM over the 10-years (as the chart shows).

Needless to say, that company has standardized on RPM for roofing and siding. Hundreds of other companies in all kinds of industries have come to the same conclusion . . . that RPM is the lowest cost roof in terms of annual charges.

Send for the booklet which explains how Robertson Protected Metal resists all forms of corrosion and reduces maintenance costs.

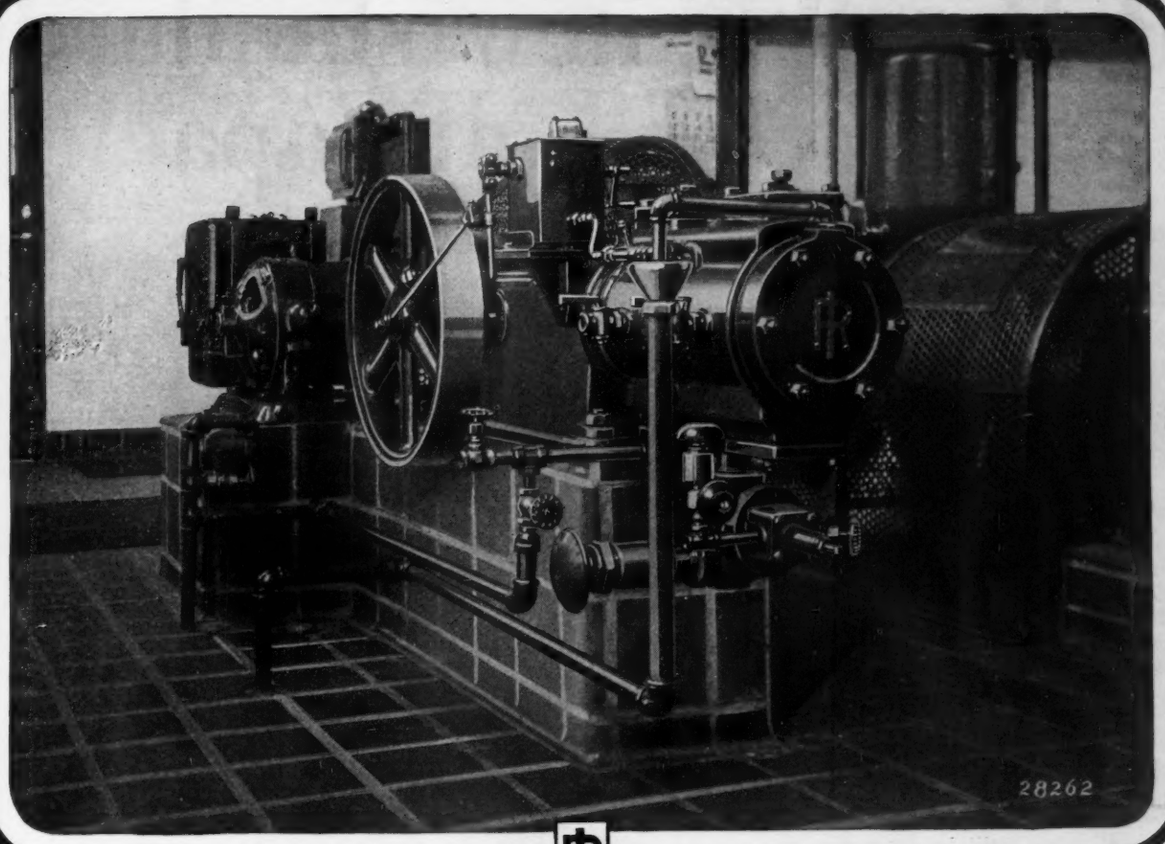
H. H. ROBERTSON COMPANY • 1st NATIONAL BANK BLDG., PITTSBURGH

# ROBERTSON

WORLD RPM WIDE

BUILDING SERVICE

Copyright 1928, H. H. Robertson Co.




This ER-I Compressor Serves a Large Public Utility Plant

# *Economy—Or Merely Cheapness?*

The first cost of a compressor is like the opening chapter in a book. It tells only a small part of the story.

Cheapness and economy are two different things. The most economical compressor is the one that

—Delivers air at the lowest cost per cubic foot.
—Calls for the smallest amount of supervision.
—Costs the least for repairs and upkeep.
—Causes the fewest delays in air service.

If you judge compressors by these standards, your decision will favor an I-R machine.

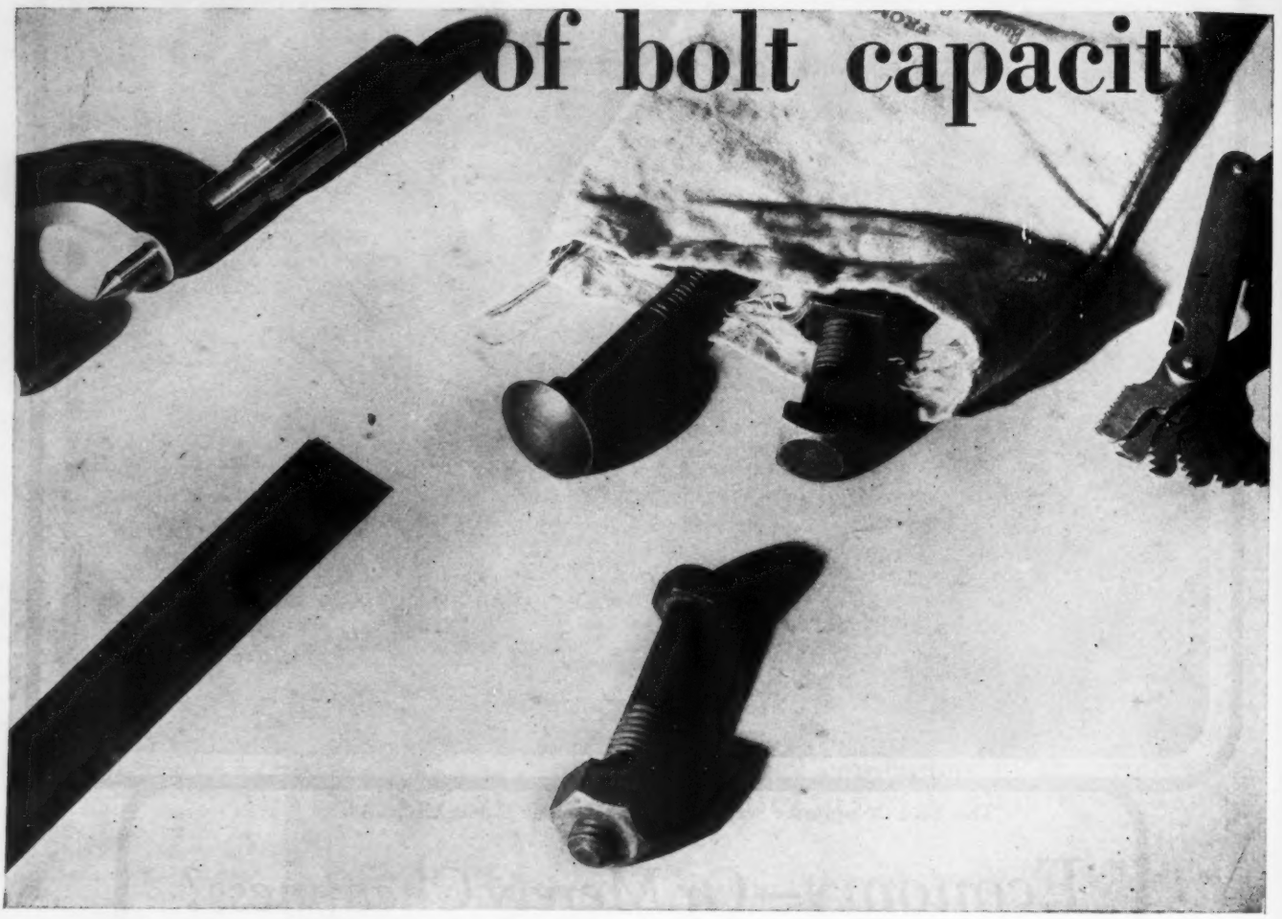
INGERSOLL-RAND COMPANY
11 BROADWAY - - NEW YORK CITY
*Offices in principal cities the world over*
For Canada Refer—Canadian Ingersoll-Rand Co., Limited, 10 Phillips Square, Montreal, Quebec

*There is an I-R Compressor for Every Air Need*

907-C

# Ingersoll-Rand

# R B & W's new standards of bolt capacit



## are a challenge to your engineers

**How can your engineers apply this increased capacity of Empire New Process Bolts to the reduction of your cost of production?**

**The Smith method of heat treatment makes EVERY Empire New Process Bolt register over 80,000 lbs. tensile strength (you will find the AVERAGE for most other bolts around 60,000 lbs).**

**Our new method of forming bolt threads has given Empire New Process Bolts increased thread strength and the uniform accuracy of hardened and ground gauges.**

**This uniform accuracy has been found valuable in cutting assembly costs—as high as 10% and 15% in specific cases. Your engineers will find in the increased tensile strength of Empire New Process Bolts another source of important economies.**

**Convince yourself by actual test. We will ship you samples promptly.**

RUSSELL, BURDSALL & WARD
BOLT & NUT COMPANY

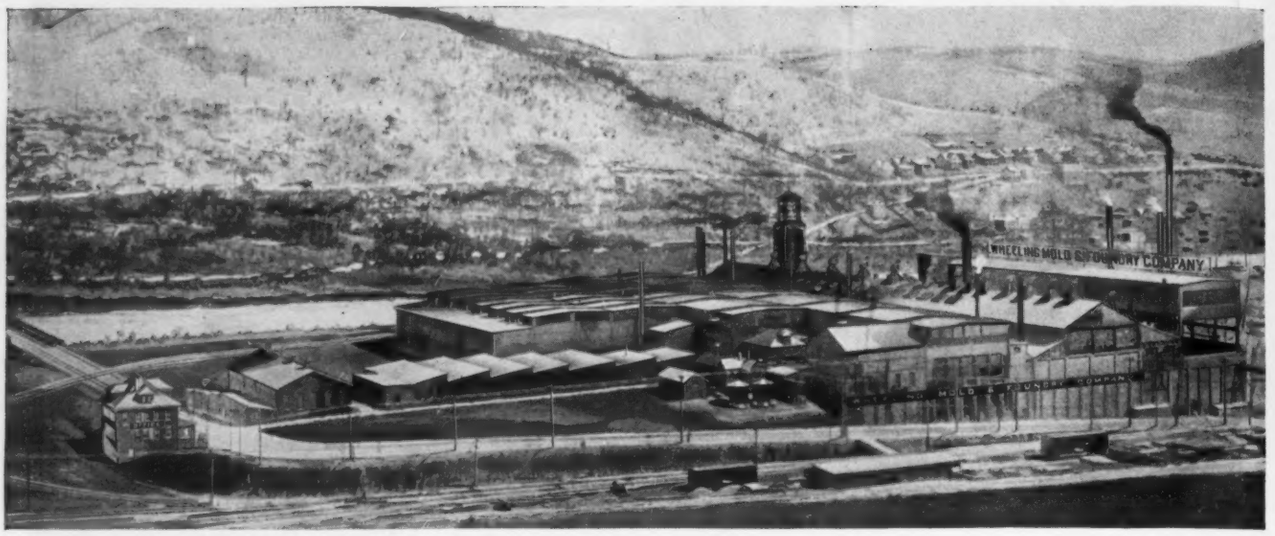
*Factories at*
PORT CHESTER, N. Y. ROCK FALLS, ILL.
CORAOPOLIS, PA.

*Sales Offices at Philadelphia, Chicago, Detroit, San Francisco, Los Angeles, Seattle, Portland*

**EMPIRE** *New Process* **BOLTS**

# -it's New

"Hisey"
A NEW CATALOG ILLUSTRATING AND DESCRIBING MANY NEW ELECTRIC LABOR SAVING TOOLS
Send for your Copy Today
THE HISEY-WOLF MACHINE CO., CINCINNATI, O.
Please mail copy of your Catalog No. 40.
Name .....
Address .....
City ..... State .....
I. T.



# WHEELING MOLD & FOUNDRY CO.

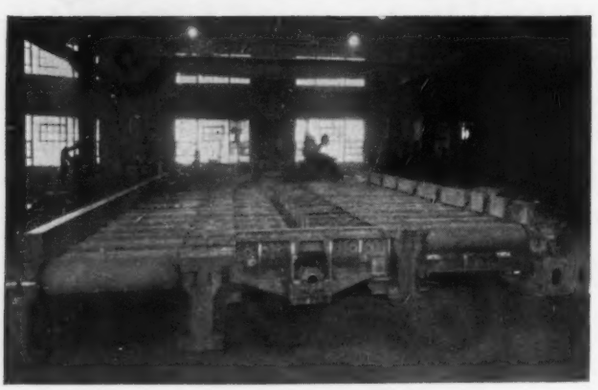
## WHEELING, W. VA.

# Rolling Mill Equipment Quality Castings

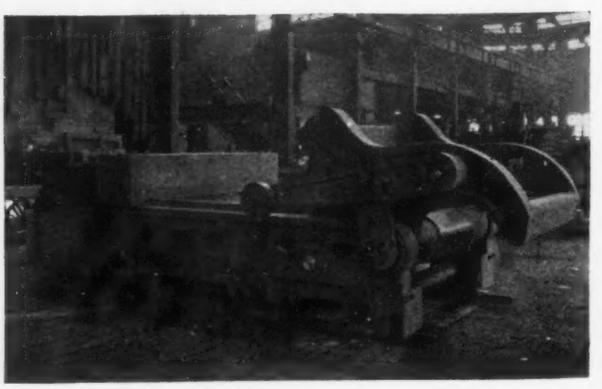
Blooming Mills
Merchant Mills
Sheet and Tin Plate Mills
Bar Mills

**WHEELING QUALITY**
STEEL ROLLS
SUPER-STEEL ROLLS
CHILLED ROLLS
SAND ROLLS
**Mo-lyb-den-um ROLLS**
STEEL AND IRON CASTINGS
ROLLING MILL MACHINERY
SPECIAL MACHINERY

Mill Tables
Mill Drives
Straighteners
Shears
Crop Conveyors



*Mill Table and Transfer*



*Ingot Chariot*

# BOXES, POTS and BOTTOMS

## Maximum Strength and Resistance to Surface Deterioration

**The unusual strength of FAHRALLOY and its resistance to surface deterioration at high temperatures eliminate the need for cooling except under most drastic conditions when only air cooling is required to keep temperatures down to about 1800° F.**

**FAHRALLOY Carburizing Boxes and Annealing Pots and Bottoms have established new low cost figures per heat hour of service, in addition to lending impetus to production. FAHRALLOY lead and salt pots give service at a cost per heat hour considerably below that for ordinary steel pots.**

**FAHRALLOY is ideally adapted for use on all types of steel treating, oil treating, enameling, preheating and chemical process equipment.**

**FAHRALLOY can be operated at temperatures up to 2000° F., or even higher in some cases. It can be furnished commercially machineable and with physical characteristics conducive to its successful use in practically all applications.**

*Amsco Manganese Steel*

*Amsco Manganese Steel truly the "Toughest Steel Known"—has an assured longer life due to the carefully controlled mix. Use it on all equipment, parts subjected to shock, wear or abrasion.*

**Send for complete FAHRALLOY Information—FAHRALLOY Number 1 for maximum high temperature-strength combined with machine-ability—FAHRALLOY Number 2 for machine-ability and resistance to oxidation and sulphur gas corrosion at high temperatures—FAHRALLOY Number 3 for strength and resistance to oxidation and sulphur gas corrosion at high temperatures when machining is unnecessary — FAHRALLOY Number 4 for fluctuating or rapidly changing temperatures—FAHRALLOY Number 5 where less rigidity at high temperatures is required.**

## SOUTHERN MANGANESE STEEL CO.

(Subsidiary of American Manganese Steel Co.)

Plant—General Office, 6600 Ridge Ave., St. Louis, Mo.

Local Offices

New York, Chicago, Pittsburgh, Cleveland, Detroit, Denver, Oakland, Los Angeles, New Castle, Del., Easton, Pa., Chattanooga.

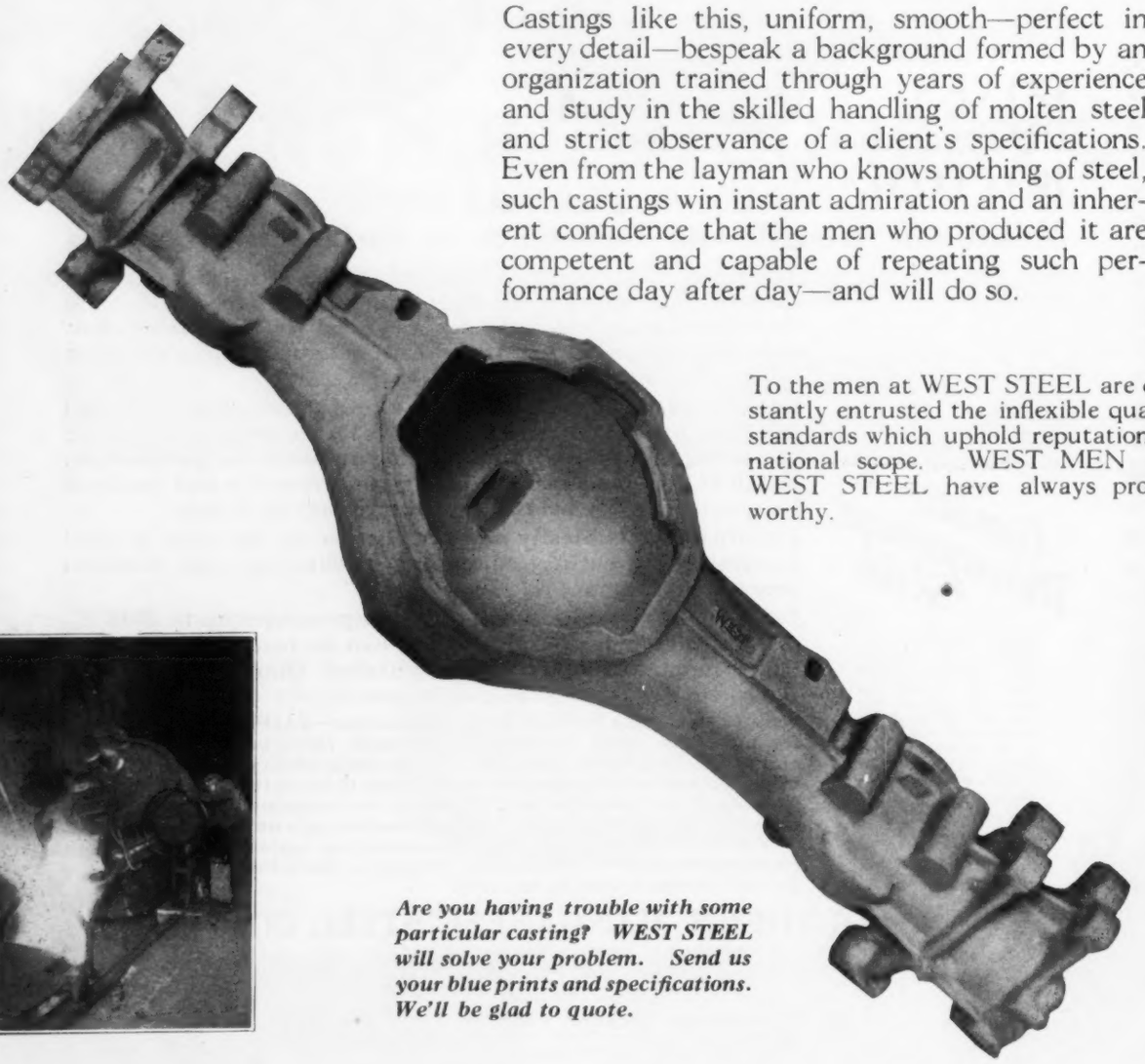
use AMSCO Fahralloy heat and corrosion resistant

# WEST STEEL
QUALITY SERVICE

## BETTER STEEL CASTINGS

# To The Expert Eye

Castings like this, uniform, smooth—perfect in every detail—bespeak a background formed by an organization trained through years of experience and study in the skilled handling of molten steel and strict observance of a client's specifications. Even from the layman who knows nothing of steel, such castings win instant admiration and an inherent confidence that the men who produced it are competent and capable of repeating such performance day after day—and will do so.



To the men at WEST STEEL are constantly entrusted the inflexible quality standards which uphold reputations of national scope. WEST MEN and WEST STEEL have always proven worthy.

***Are you having trouble with some particular casting? WEST STEEL will solve your problem. Send us your blue prints and specifications. We'll be glad to quote.***

***We solicit your inquiries***

## THE WEST STEEL CASTING CO.
### Cleveland, Ohio

# A Real Combination for

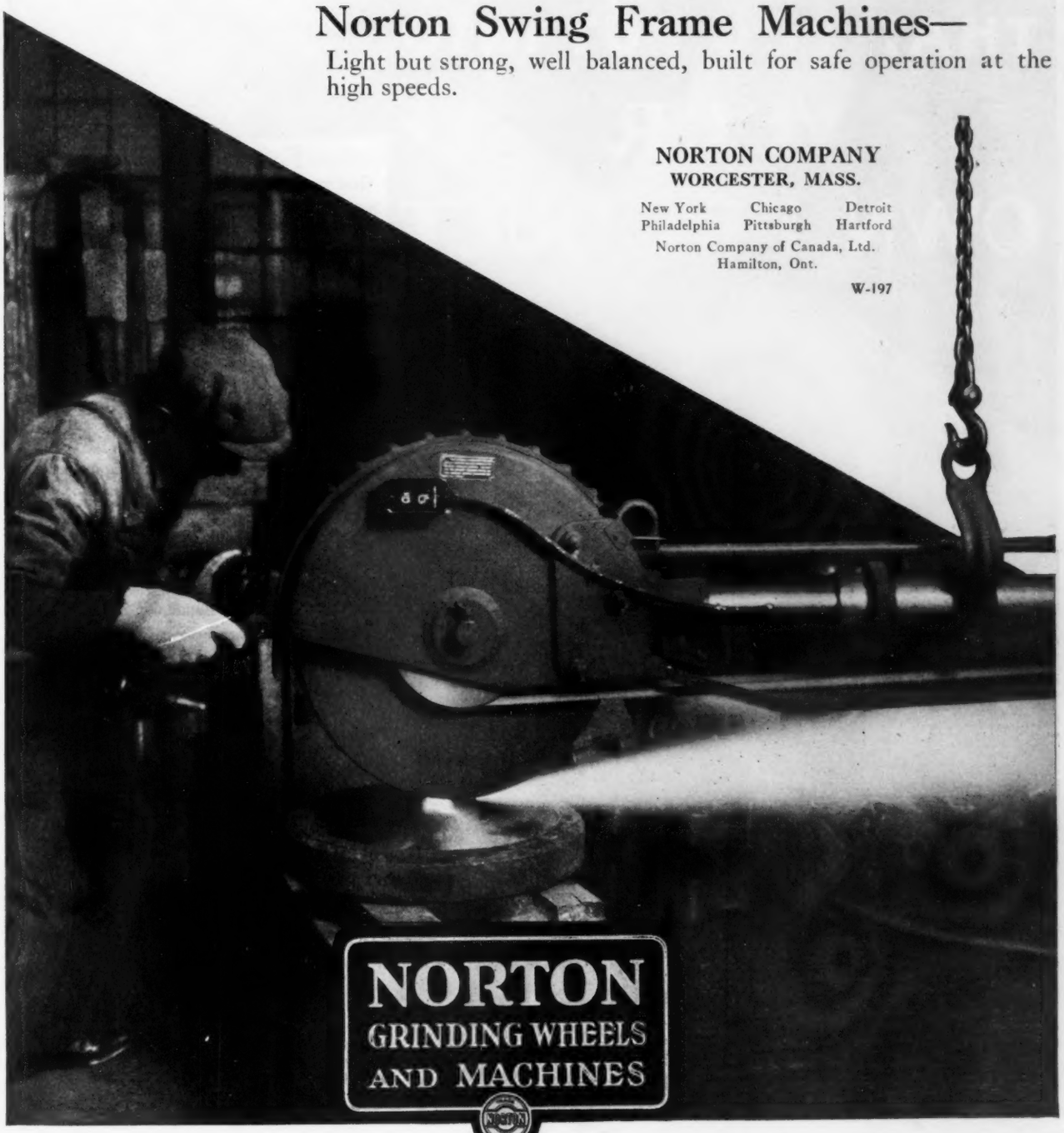
## *High Speed Snagging—*

**Norton Wheels with Bakelite Bond—**

Open structure, large or small holes, all grains and grades.

**Norton Swing Frame Machines—**

Light but strong, well balanced, built for safe operation at the high speeds.




**NORTON COMPANY**
**WORCESTER, MASS.**

New York Chicago Detroit
Philadelphia Pittsburgh Hartford

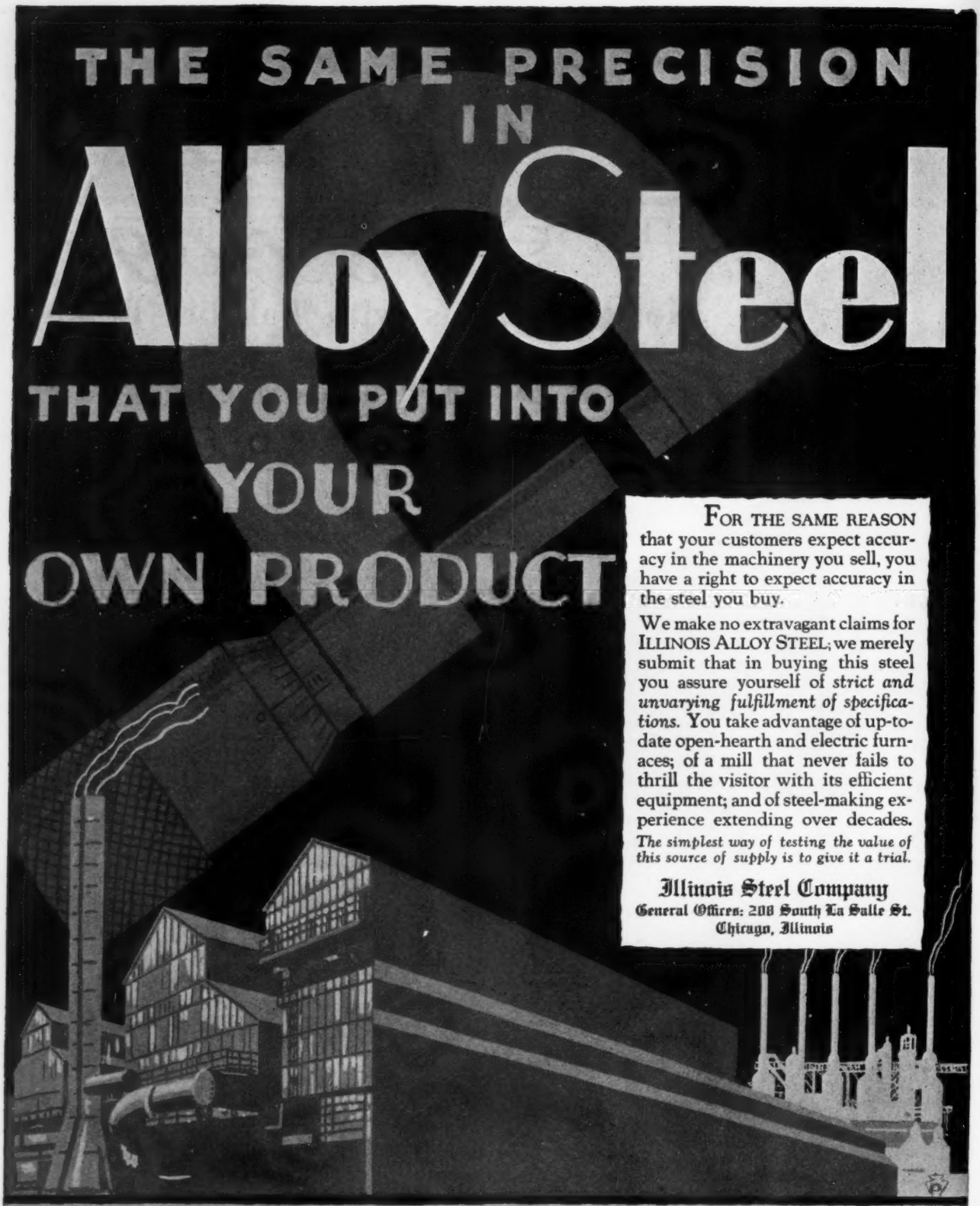
Norton Company of Canada, Ltd.
Hamilton, Ont.

W-197

THE SAME PRECISION IN

# Alloy Steel

THAT YOU PUT INTO YOUR OWN PRODUCT



FOR THE SAME REASON that your customers expect accuracy in the machinery you sell, you have a right to expect accuracy in the steel you buy.

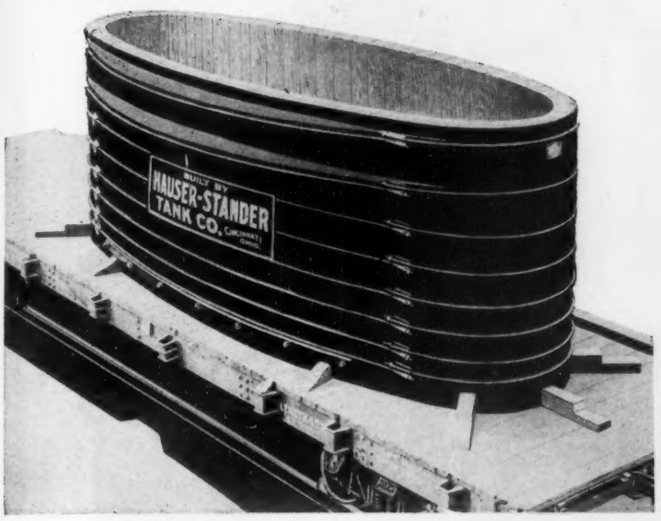
We make no extravagant claims for ILLINOIS ALLOY STEEL; we merely submit that in buying this steel you assure yourself of *strict and unvarying fulfillment of specifications.* You take advantage of up-to-date open-hearth and electric furnaces; of a mill that never fails to thrill the visitor with its efficient equipment; and of steel-making experience extending over decades.

*The simplest way of testing the value of this source of supply is to give it a trial.*

**Illinois Steel Company**
General Offices: 208 South La Salle St.
Chicago, Illinois

# Illinois Alloy Steel

# Unusual Durability!



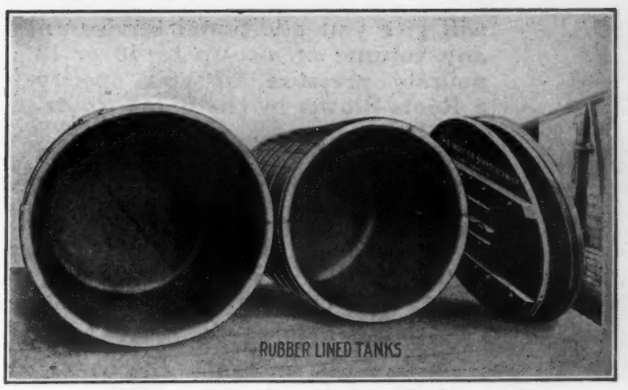

## *Pickling and Acid Storing* WOODEN TANKS

WE BUILD Pickling Tanks of Genuine Red Gulf Cypress, Long Leaf Yellow Pine or Douglas Fir, 2″ to 12″ thick in the rough. All the lumber is cut to our special specifications, and special machinery is employed for milling the heavy timbers and making accurate joints.

Hauser-Stander quality is the result of many years of diversified experience in tank building, and is your assurance of maximum tank service.

When you specify a Hauser Stander Tank you get a product built to meet your specific needs—*no tanks are carried in Stock.* We maintain a *Special Department* for the purpose of co-operating with Engineers and Chemists in determining the most suitable material and construction of tanks for their particular needs.

***Write for the Hauser-Stander treatise on the use of wood in tanks, and tank construction, and have it handy for ready reference.***




*Rubber-lined Tanks for storage of muriatic, Phosphoric Acids, etc.*

They eliminate all the expense and danger incident to handling muriatic acid in carboys, are absolutely leak proof and most economical.

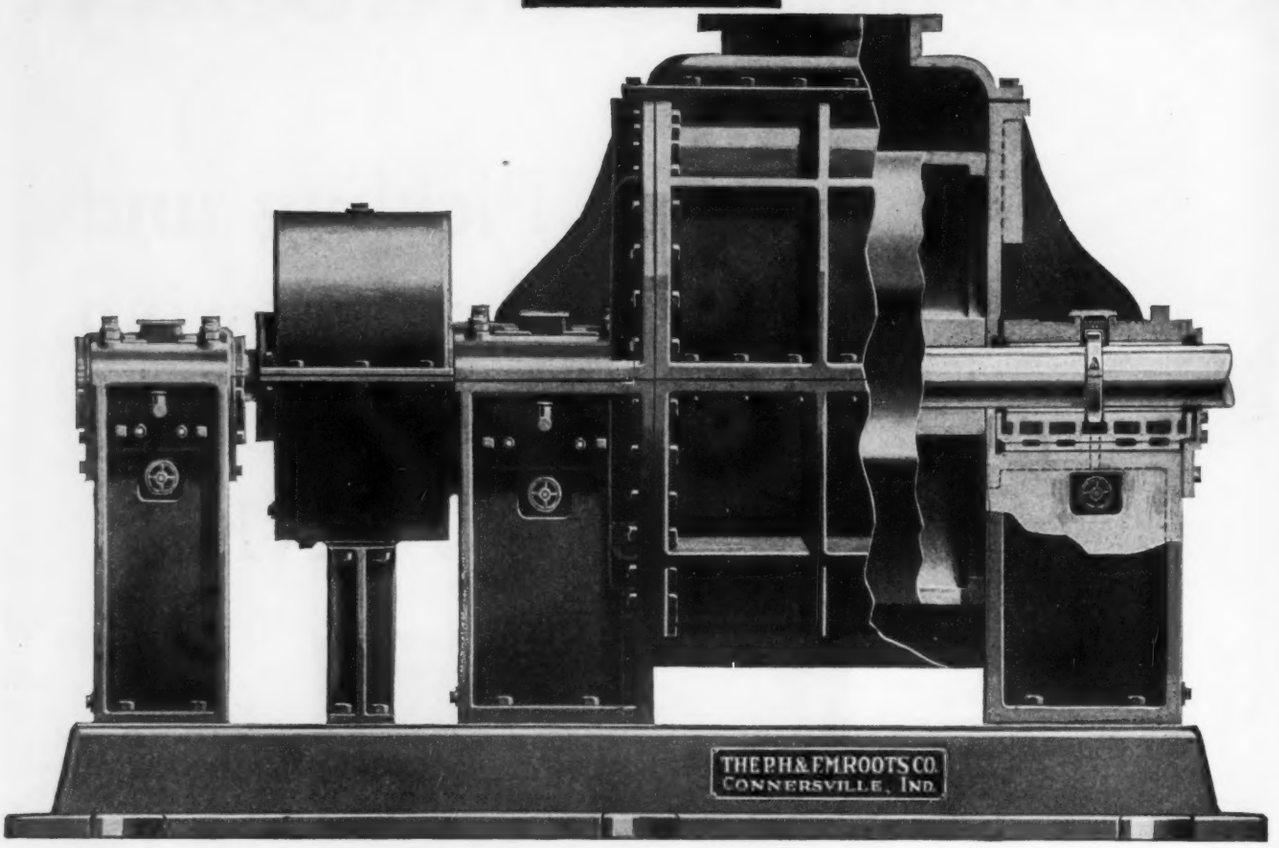
## *The Hauser-Stander Tank Co.*

***Spring Grove Ave. and Ammen St.***

***Cincinnati, Ohio***

# "WE WIN WITH QUALITY"

ROOTS




# Your Next Blower---

will give you additional service on any volume of air up to 10 or 12 pounds pressure, if you specify a Roots Blower by the name *Roots*.

Look at this well-proportioned and accurately designed Roots Blower of the Heavy Duty type, showing:

Roots extra wide face precisely cut gears of *conventional design* with reliability proven by years of service.

Roots double outboard bearing carrying shaft extensions *through* gears.

Roots *adjustable self-oiling quarter-box bearings*, furnished on all larger size blowers.

Roots *neatly designed bedplate* of heavy section carrying complete unit.

Roots Blowers operate at conservative speeds and guarantee positive delivery. The power required is in direct proportion to speed and load, insuring highest over-all efficiency. Any practical type of drive may be applied.

Other Roots Products include: Gas Pumps, Meters, Liquid Pumps, Vacuum Pumps, Valves, Gates and Couplings. Complete information available on any Roots Product.

*Originators of the Double Impeller Rotary Principle.*

## The P.H.& F.M.ROOTS CO.

CHICAGO
Peoples Gas Building

CONNERSVILLE, INDIANA

NEW YORK
120 Liberty Street

# To The Man Who Buys Tubes and Pipe— A Suggestion and an Offer of Co-operation

IF you buy iron pipe for installations in which corrosion is a problem; if you buy seamless steel tubes because of their greater strength, uniformity and suitability for certain applications, we suggest an investigation into the merits and advantages of Seamless Toncan Iron Pipe and Seamless Toncan Iron Tubes.

Toncan Iron, a development of Central Alloy Steel Corporation, is an iron of guaranteed purity, alloyed with copper and molybdenum. While it possesses high resistance to corrosion, Toncan Iron works as easily as mild steel.

Seamless Toncan Iron Tubing up to 5½ in. outside diameter and Seamless Pipe up to 5 in. I.P.S. offer the solution to many corrosion problems.

If you will give us a statement of your conditions—the kind of corrosion encountered, the type of pipe or tubes you are now using, average service life and other data—we shall be glad to submit suggestions relative to the suitability of Seamless Toncan Iron.

## THE BABCOCK & WILCOX TUBE CO.

Works and General Offices: Beaver Falls, Pa.
General Sales Office: 85 Liberty Street, New York, N. Y.

Atlanta Amarillo Boston Chicago Cincinnati Cleveland Dallas Denver Detroit Galveston Houston Los Angeles New Orleans Philadelphia Phoenix Pittsburgh Portland Salt Lake City San Antonio San Francisco Seattle Havana Honolulu San Juan Porto Rico

## SEAMLESS TONCAN

TUBES PIPE

# This P&H Crane has given 100% Service since 1900–28 years

P & H Crane No. 266 in Sub-Station of Havana Electric Railway Co.

BACK in 1900, this 45-ton crane was installed for the Havana Electric Railway Co. It has been in constant service ever since and Mr. C. W. Ricker, chief engineer, reports that "it has never given us a moment's trouble." There are few pieces of equipment in industry that can show such performance — yet with P & H Cranes this is not unusual.

Every part in a P & H Traveling Crane is made in our own plant, to the highest standards of materials and methods known. No attempt has ever been made to meet a price, yet because of large scale production P & H Cranes are not out of line on cost. For either new needs or replacement, study Bulletin 408R before you buy.

HARNISCHFEGER CORPORATION
Established in 1884 Crane and Hoist Division
3811 National Avenue, Milwaukee, Wis.

*New York, Philadelphia, Birmingham, Chicago, Kansas City, San Francisco, Charlotte, Detroit, Dallas, Pittsburgh, Portland, Memphis, Los Angeles, Seattle, Jacksonville, Atlanta, Baltimore, Boston, Des Moines, Indianapolis, St. Louis, Minneapolis, Cleveland*

**There Are More P & H Electric Traveling Cranes in Service Than Any Other Make**

*Almost human* in action, the hydraulic valve controls the operation of the hydraulic press or equipment. Obviously, it is of primary importance that hydraulic valves be *right*—in every detail of design and construction.

Hydraulic valves form an important part of Birdsboro's production. Here they are made with a thorough knowledge of hydraulic requirements, in variety to meet every present-day need:

Hydraulic Operating Valves
*(balanced piston type)*
High Pressure Stop Valves
*(plain and balanced)*
Poppet Type Operating Valves
High Pressure Check Valves
*(pilot control and straight type)*
Pressure Relief or Shock Valves
Special Valves

Birdsboro's Valve Bulletins are of particular interest to those concerned with the operation and maintenance of hydraulic equipment. Write today for a set.

Hydraulic Two-Pressure Valve, with check, designed and built by Birdsboro.

# BIRDSBORO

## STEEL FOUNDRY AND MACHINE COMPANY

DESIGNERS and BUILDERS

**BIRDSBORO, PENNSYLVANIA**

New York
90 West St.

Pittsburgh
First Nat'l Bank Bldg.

Chicago
310 So. Michigan Ave.

Washington, D. C.
Munsey Building

Baltimore
Citizens Nat'l Bank Building

Cleveland
National Building

# *The Youngstown Tradition of Service started early in its history*

THERE'S a sheet buyer in Pennsylvania who still tells his friends of an incident that happened twenty years ago.

One Saturday afternoon he found himself in imperative need of sheets. Though not a regular Youngstown customer, he turned to Youngstown in the emergency. Our offices were closed but the long distance operator found a man on the job and the Pennsylvanian placed his order for a carload to be delivered "as soon as possible." At the end of the conversation he said—"I didn't get your name." "Campbell," was the answer. "What department?" asked the buyer. "President," said Mr. Campbell—who then proceeded to take the order out to the mill. Bright and early Monday morning the car-load of sheets arrived at the customer's place of business, bettering the customer's fondest hopes.

*Service is a Youngstown tradition established by the founder of the company—adhered to by every member of the organization.*

THE YOUNGSTOWN SHEET & TUBE COMPANY

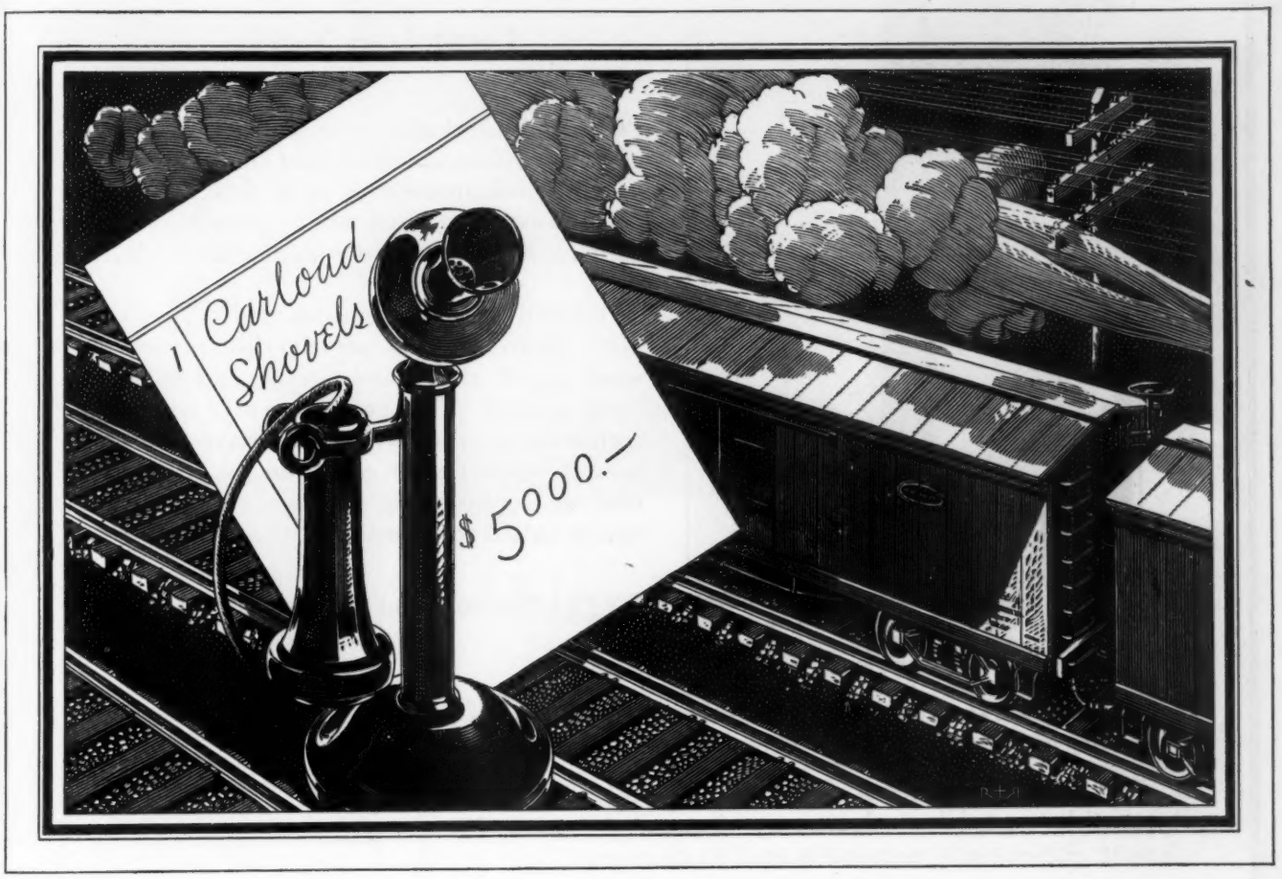
*General Offices:* Youngstown, Ohio
SALES OFFICES IN 20 CITIES

PIPE · SHEETS · CONDUIT
YOUNGSTOWN

*No other steel sheet can excel Youngstown Copperoid for corrosion-resistance and durability. It is 21.29% more durable than the average copper-bearing sheets.*

*The use of Youngstown Copperoid Steel Sheets is a decided economy for any use where rust-resistance is a factor.*

# Called on him for 3 years
# Then, a $5000 order by Telephone




*An Advertisement for Bell Long Distance Telephone Service*

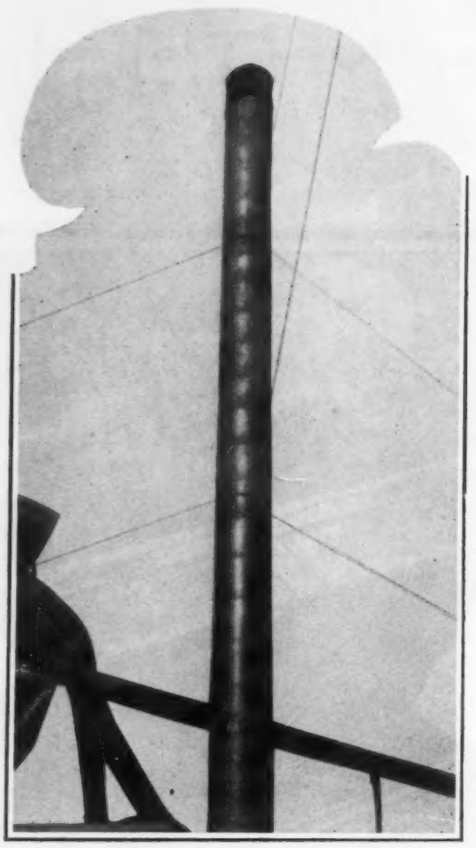
THE sales manager of a West Virginia tool company made personal calls upon a Cincinnati jobber for three years—without making a sale. Then one day he learned that a large job of work was to be started. He instantly called the jobber by Long Distance. Sold him a carload of shovels. Amount of the order, $5000. Telephone charge, $1.30.

In the packing industry, reams of correspondence are often exchanged before specifications can be agreed upon. In a 10-minute telephone conversation, an Austin, Minnesota, firm took a 5-carload order and laid the groundwork for future shipments of 500,000 pounds. The new customer was 1500 miles away.

A Cedar Rapids insurance man had learned to use Long Distance while in the coal business. Each week from his desk he calls an average of 20 of his salesmen. "It enables me to talk to them just as well as if I visited them in person." In five years, his annual business has increased from one million to five and a half million dollars.

What long distance calls could you profitably make now? They are inexpensive. New station to station day rates are: San Francisco to New York, $9. Pittsburgh to Boston, $2.20. Chicago to Detroit, $1.35. Newark to Philadelphia, 60c. . . . . Calling by number takes less time. . . . . *Number, please?*

# ". . . unusually good service from a stack"



*An Experience of the Norwood Sash & Door Manufacturing Company with an ARMCO Ingot Iron Stack.*

"Our ARMCO Ingot Iron smoke stack recently dismantled was found to be in such excellent condition that we believe you will be interested to know that it has been in continuous service since September, 1912.

"You will realize of course, that since we burn from fifty to seventy-five per cent waste wood, this is unusually good service from a stack. The stack was still in good condition and we would not have had to take it down had it not been for the fact that we were putting in a new power plant which called for a smaller stack."

The Norwood Sash & Door Mfg. Co.
Norwood, Ohio

Burning wood—rust-fire* intensified! Yet ARMCO Ingot Iron withstood the relentless attack of this powerful invader nearly a decade and a half.

The high and uniform purity of ARMCO Ingot Iron made this typical service possible . . . Electrolytic corrosion can not gain rapid headway in "pure iron" as it does in less pure irons and steels.

Your company, too, can lower that rust-fire toll with ARMCO Ingot Iron. Ask our Development Engineers to show you the way—whether it's a stack, breeching, or any other installation requiring rust-resisting sheets and plates.

(We supply STRIPSHEETS in various gages and finishes and in coils if desired.)

## THE AMERICAN ROLLING MILL COMPANY

**Executive Offices, Middletown, Ohio**

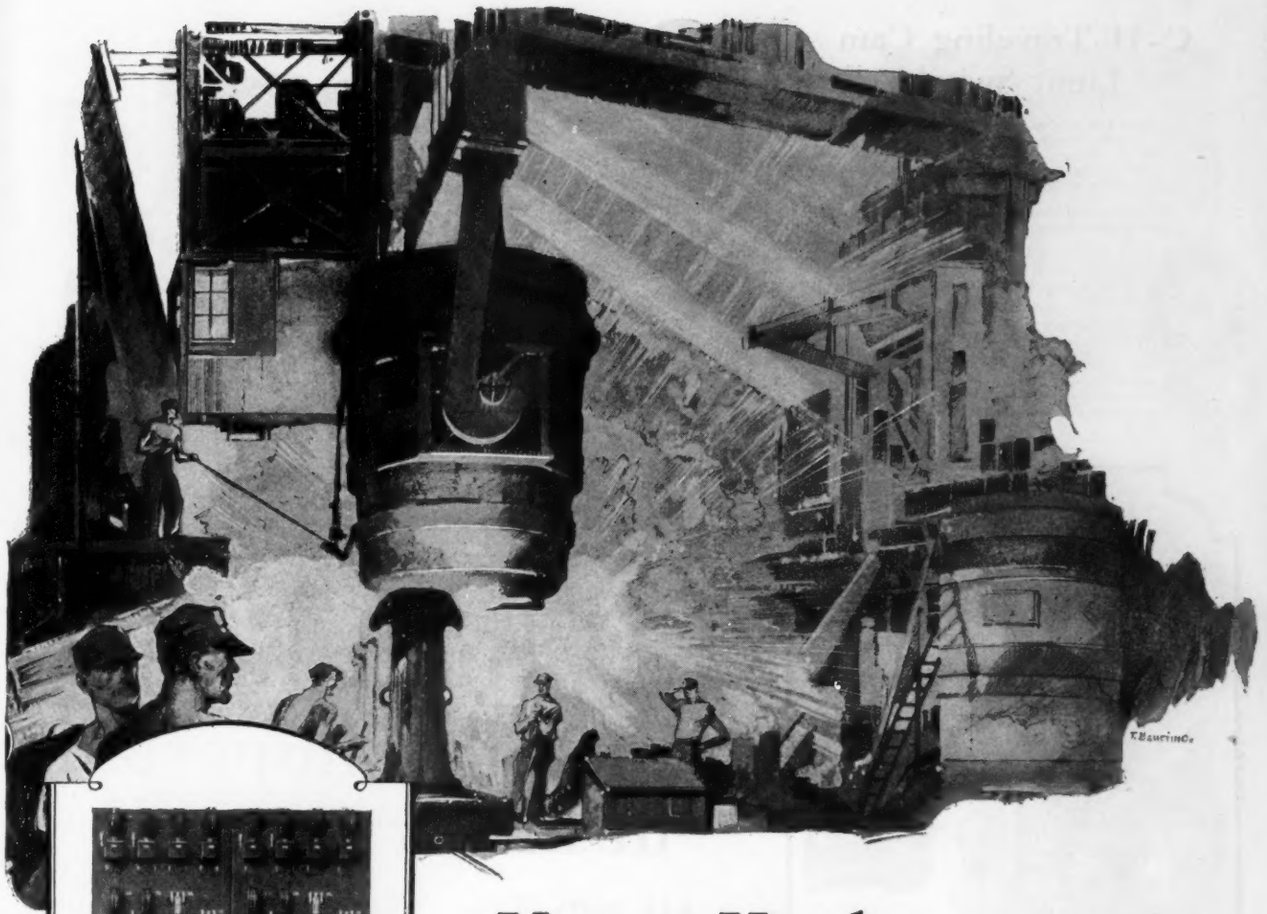
Export: The ARMCO International Corporation
Cable Address—ARMCO, Middletown, (O.)

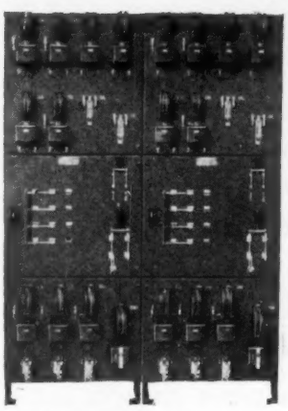
*District Offices*

Chicago
Cincinnati
Cleveland
Detroit
Philadelphia
Pittsburgh
New York
San Francisco
St. Louis

ARMCO
INGOT IRON
RESISTS RUST

* *Here RUST-FIRE is retarded. The only difference between rusting and burning is time—both are oxidation. You can feel and see the fire produced by rapid burning. But when metal rusts, the process is too slow to see. Rust is the "ash" of this fire.*





*This G-E controller panel is the brain center which starts, stops, and reverses the two motors which move the giant ladles of molten metal in the steel plant*

# Unseen Hands To Fashion Steel

A steel mill. G-E controllers everywhere. On cranes that lift and carry giant ladles of molten metal. In rolling mills that must rapidly reverse themselves as they shape huge billets into rails. G-E controllers at every stockpile, furnace, and machine, intelligently directing a multiplicity of operations—hauling, lifting, pouring, rolling, shearing.

Operators are protected from unexpected starting or reversing of equipment. Motors are protected from overloads or undervoltage. Operations are easily handled from remote points. The result is increased output at lower production cost.

These are the daily tasks of G-E controllers not only in the steel mill but throughout industry. Look for the G-E monogram and the distinguishing "CR" number whenever you purchase controllers.

*Controllers*
*–guide and conserve industry's power*

301-29

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

## C-H Traveling Cam Limit Switch

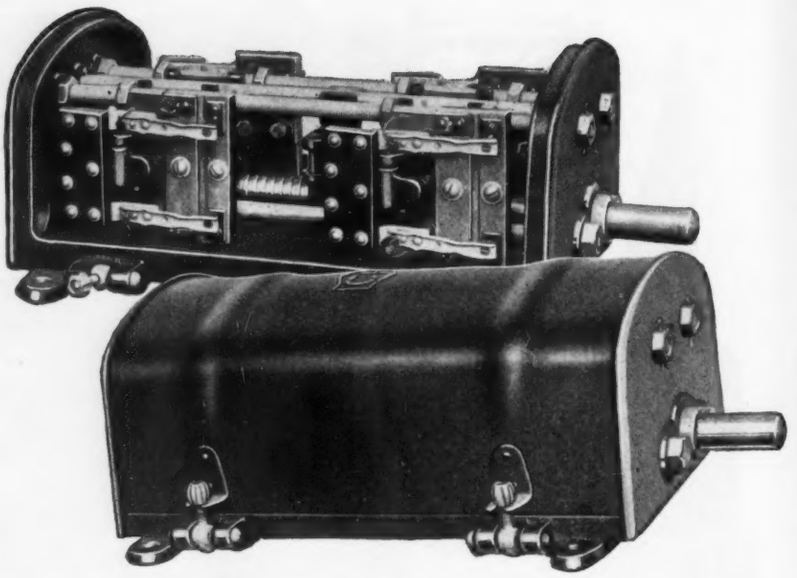
1 *Wide range of adjustment, and extreme accuracy in stopping. Ideal for all types of hoists where accuracy of slow down and final stop is required—and for many other applications.*

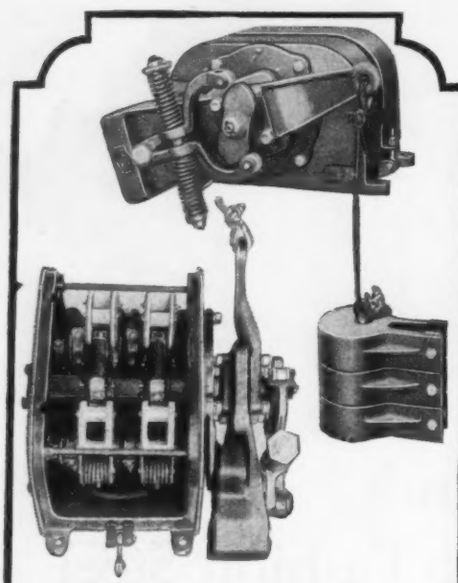
2 *Double pole contacts eliminate trouble from accidental grounds or shorts.*

3 *Contacts are all quick break type, and when adjusted to the tripping point can be positively locked to that position by lock nuts.*

4 *Rugged construction throughout. All bearings bronze-bushed. Dust proof cover.*

5 *Contacts and fingers are standard C-H construction and quality—long-lived, easily cleaned or replaced.*





## C-H Crane Safety Limit Switch

1 *Small compact size—can be mounted in 4 positions. Easily wired.*

2 *Opens motor circuit, no pilot circuit required. Double pole protection.*

3 *Dynamic braking assures quick positive stopping.*

4 *Quick acting contacts–automatic reset. Contacts and shields easily renewable—interchangeable with standard mill type contactor parts.*

5 *Ball bearings—rugged construction throughout—all wearing parts hardened.*

6 *Tripping weight an integral part of switch. Only one weight suspended.*

7 *Built in two sizes—smaller size shown.*

# Which link is the most important in motor control?

ALL parts of Motor Control are of equal importance. The motor itself, the starter, the push-button station, limit switches, every link of the chain must be equally dependable.

That's why it pays to choose every part of Motor Control with equal care—including such accessories as *limit switches.*

The two C-H Limit Switches shown, are typical of the many in the standard C-H limit switch line. Switches for special, specific problems of automatic control will be designed—all backed by over 30 years' experience of C-H Engineers with Motor Control problems.

*Write for information on the complete C-H line of Control accessories.*

The CUTLER-HAMMER Mfg. Co.
*Pioneer Manufacturers of Electric Control Apparatus*
1256 St. Paul Avenue
MILWAUKEE, WISCONSIN

# CUTLER HAMMER

*The Control Equipment Good Electric Motors Deserve*

# THE SCALE FREE PROCESS ~

## *A short cut to pipe satisfaction*

*Less corrosion—particularly pitting.* Mill-scale is one of the principal causes of pitting; it is electronegative to the pipe metal and sets up galvanic action causing pitting around the scale areas; therefore, when scale is removed, longer life is obtained from the pipe.

*Clean, smooth surfaces*—forming a better base for galvanizing or other protective coatings.

*Full delivery capacity*—less friction loss, because there are no obstructions to the flow.

*No clogging of valves or small orifices*—because there is no scale in the pipe to break off.

*Greater strength at the weld.* The additional rolling which scale free pipe receives, increases the strength at the weld approximately 20 per cent.

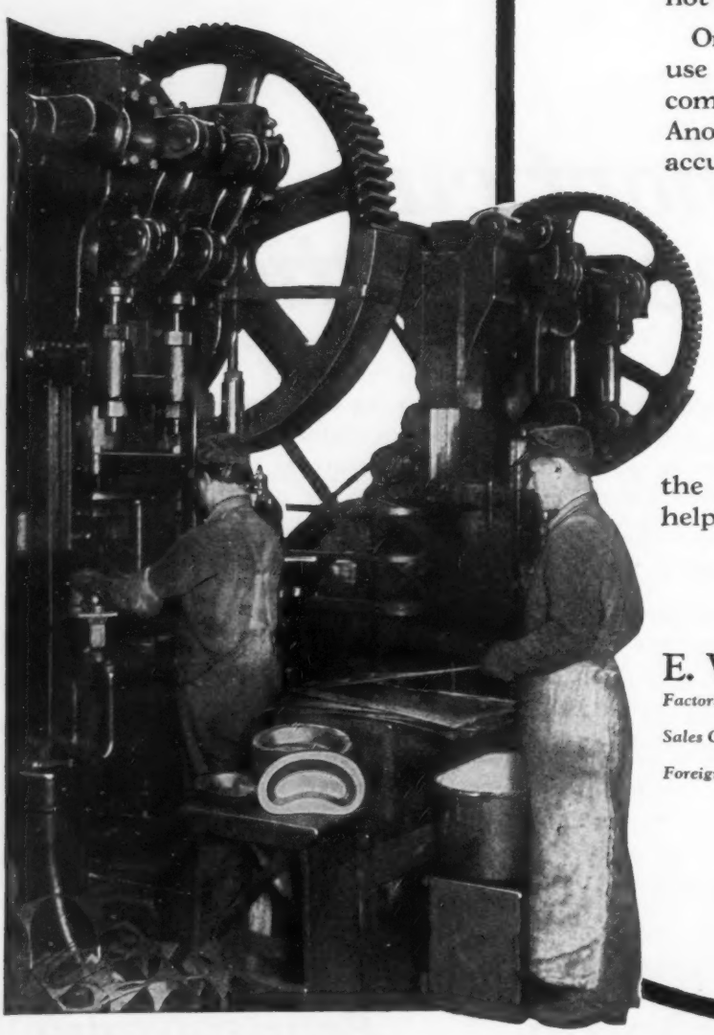
For details of the Scale Free Process and its advantages, write for a copy of Bulletin No. 7.

**NATIONAL TUBE COMPANY**
***Pittsburgh, Pennsylvania***

# BLISS

## If it's sheet metal
## You can make it with a Bliss

A complete list of articles being made with Bliss equipment is a revelation of the surprising extent to which sheet metal parts are being used in every industry. Jewelry, household utensils and appliances, hardware, electrical apparatus, automobile, tractor and car parts, metal furniture—it is difficult to find any metal product that does not include some sheet metal part.



One of the reasons for the wide use of sheet metal parts is their combined strength and lightness. Another is the high degree of speed, accuracy, ease, and economy with which they can be made, and these advantages have been established largely through the work done by Bliss Presses.

Let us explain the application of Bliss equipment to *your* sheet metal operations. The 68-year experience of the Bliss engineers is sure to be helpful to you.

BLISS *for* MACHINERY

E. W. BLISS CO. BROOKLYN, N. Y. U. S. A.

*Factories:* Brooklyn, N. Y. Hastings, Mich. Salem, O. Cleveland, O.

*Sales Offices:* Detroit Cleveland Chicago Pittsburgh Philadelphia Cincinnati New Haven Rochester

*Foreign Factories and Offices:* London, Eng. Turin, Italy Paris, France

BLISS

No. 535

Listed as standard by the Underwriters' Laboratories, Inc.

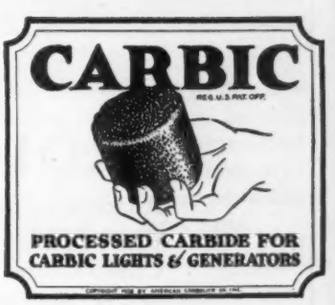
# "You can't equal the Carbic for generator* portability"

IT couldn't be any simpler in construction. There are no moving parts. You can charge it in three minutes. Two men can carry it. It weighs only 200 pounds fully charged. It has unique safety features.

The initial cost is small and it is extremely economical to operate.

With a Carbic low pressure generator and a few drums of Carbic, you are always ready for any ordinary welding or cutting work.

Send for our new catalogue.




A standard drum of Carbic contains forty cakes, size No. 20. Carbic is distributed by the Union Carbide Sales Company through its national chain of warehouses.

OXWELD ACETYLENE COMPANY
*Unit of Union Carbide and Carbon Corporation*
New York City, 30 East 42d St. UCC Chicago, Peoples Gas Bldg.
San Francisco, Adam Grant Building

# CARBIC GENERATOR

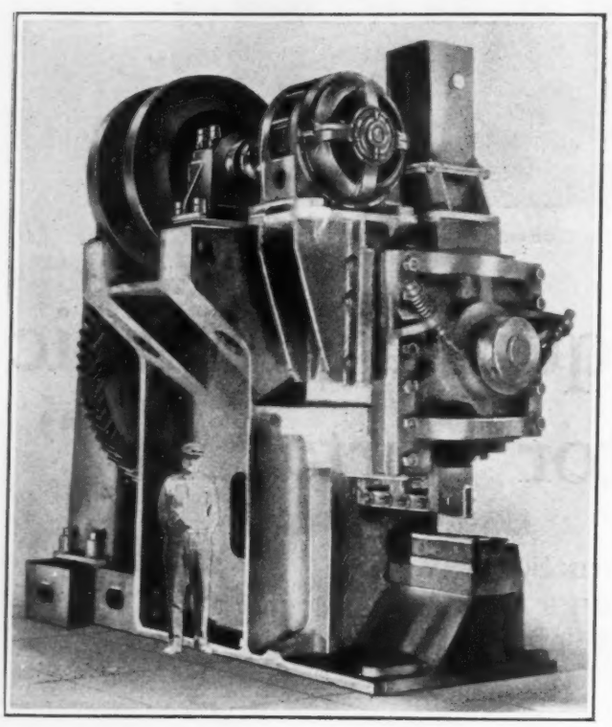
*For Oxy-Acetylene Welding and Cutting*

**Anyone having a Carbic Generator is entitled to Oxweld Generator Service. Phone or write our nearest district office.*

# ROLLING MILLS

*and*

## Equipment of Every Description



### 700-Ton Open Throat Shear

An improved type open-throat shear exerting a knife pressure of 1,400,000 pounds and designed to cut 4½" square or 5" round cold alloy steel. It requires a minimum amount of floor space as the drive gears and motor are mounted on top of the shear, thereby also reducing liability to injury. The jaw clutch is of the air operated, non-knocking type and is mounted on top of the frame.

The ram is balanced by means of a double spring which is easily accessible for adjustment. A band brake on the end of the eccentric shaft automatically comes into action as the ram reaches the top of its stroke stopping the knife in the upper position. All gears have cut herringbone teeth with solid apex and, together with the fly wheels, are enclosed in oil tight covers. Provisions have been made for supplying ample lubrication to all moving parts.

### ROLLS

Adamite — Manganite
Steel — Alloy — Grain
Chill—Chilled Adamite
M - H Special Chilled
M - H Special Grain
M - H Nickel — Iron

### GEARS

Cut and Cast Gears
Spur — Bevel — Racks
Mill Pinions — Racks
Single Helical Gears
Double Helical Gears
Drives of Every Kind

## MACKINTOSH-HEMPHILL COMPANY

ESTABLISHED 1803 AT PITTSBURGH

*Pittsburgh Iron & Steel Foundry*
*A. Garrison Foundry*

PIONEERS
ENGINEERS
BUILDERS

*Woodard Machine Company*
*Fort Pitt Foundry*

# They couldn't compete today

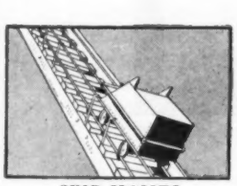
Bondsmen under the goad of the master's lash doing the task they were given . . . mere human brutes performing the work of the world! In armies of hopeless misery they harrowed and dug and hewed. Heaping effort on effort they reared the glories of empires by a titanic compounding of manual strength.

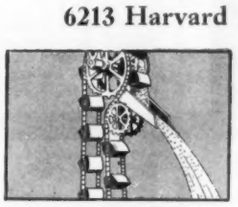
But they couldn't compete today! Their most Herculean labors would not suffice for the needs of the industries we know . . . Machines have supplanted men—and well.

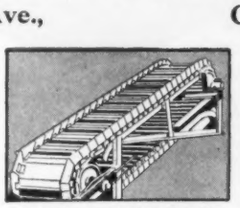
Bartlett-Snow material handling and processing machinery is serving almost every industry. It is moving hundreds of materials faster and more economically than they ever were moved by men. It is making manufacturing a continuous progression, where once it was a medley of piecemeal operations. It is cutting production costs, speeding delivery and reducing the toll of rejections.

The engineers of Bartlett-Snow with thirty-five years of material handling experience behind them are splendidly fitted to apply conveying equipment to industrial processes. They will gladly co-operate with anyone having a problem—be it large or small—that is in their field.

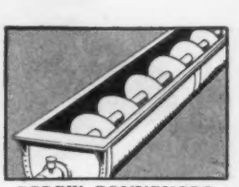
THE C. O. BARTLETT & SNOW COMPANY
6213 Harvard Ave., Cleveland, Ohio.


SKIP HOISTS


BUCKET CONVEYORS


APRON CONVEYORS

BELT CONVEYORS


SCREW CONVEYORS

# Bartlett - Snow

**ELEVATING CONVEYING PROCESSING MACHINERY**

# PIONEER PIG IRON

## A LEADER FOR 75 YEARS

**"Pioneer" Pig Iron's enviable reputation for three-quarters of a century has been largely due to the maintenance of uniform high quality resulting from:**

- **—mining and handling of our own materials**
- **—uniform ore mixture**
- **—most modern, scientific production processes**
- **—careful grading and repeated tests by analysis of each cast**
- **—large percentage of brown ore used, giving the iron high average manganese content**

**In addition to these good qualities, "Pioneer" is strictly an all ore iron—no mill cinder or other by-products being used in the mixture.**

**Use "Pioneer" as *the* iron for your foundry products for uniform results, sound castings, and better products.**

**PRODUCTS**

**Pig Iron**
**Semi-finished Steel**
**Bars and Shapes**
**Hot and Cold Rolled Strip Skelp**
**Black, Blue Annealed, Galvanized, Electrical and Long Terne Sheets**
**Coke Tin Plate — Tin Mill Black Plate**
**Black and Galvanized Standard Pipe**
**Oil Country Tubular Goods**
**Bolts, Nuts, Spikes, Etc.**

*Branch Offices*

**Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, El Paso, New York, Philadelphia, Pittsburgh, San Francisco, St. Louis**

# REPUBLIC
## IRON & STEEL CO. YOUNGSTOWN O.
# PIG IRON

**TO MAKE good alloy steel requires good ferro-alloys. Electro Metallurgical Sales Corporation offers a complete line of ferro-alloys of high quality backed by more than 20 years of experience.**

**Our Service Department is maintained to demonstrate the proper use and benefits to be derived from these alloys.**

. . .

CHROMIUM
High Carbon Ferrochrome (maximum 6% carbon)
Low Carbon Ferrochrome (in grades, maximum 0.10% to maximum 2.00% carbon)
Chromium Metal
Chromium-Copper
Miscellaneous Chromium Alloys

MANGANESE
Standard Ferromanganese 78 to 82%
Low Carbon Ferromanganese
Manganese Metal
Manganese-Silicon (Silico-Manganese)
Manganese-Copper
Miscellaneous Manganese Alloys

SILICON
Ferrosilicon 15%
Ferrosilicon 50%
Ferrosilicon 75%
Ferrosilicon 80 to 85%
Ferrosilicon 90 to 95%
Refined Silicon (minimum 97% silicon)
Calcium-Silicon
Silicon-Copper
Silico-Manganese (Manganese-Silicon)
Miscellaneous Silicon Alloys

VANADIUM
All Grades

ZIRCONIUM
Silicon-Zirconium
Zirconium-Ferrosilicon

# Alloy Steel for superheat

THE USE of chrome steel for valves and superheated tubes assures stability of operation at high temperatures and pressures.

Power plant valves of alloy steel are operating safely at 400° Centigrade and 1400 pounds pressure. Alloy steel valves in oil refineries are operating satisfactorily at 900 pounds pressure and a temperature of 550° Centigrade.

We shall be pleased to explain how the properties outlined above may be obtained from the use of Ferro Alloys.

**Electromet Brand** *Ferro-Alloys and Metals*

*Sole Distributors*
ELECTRO METALLURGICAL SALES CORPORATION
*Unit of Union Carbide and Carbon Corporation*
Carbide and Carbon Building, 30 E. 42d St., New York

# A plain statement of facts

MORE than twenty years ago the first commercial oxygen for welding and cutting was produced—Linde Oxygen.

From that day on, Linde has been the standard with which all others are compared.

It has always had by far the largest sale of any oxygen.

There are three reasons for this:

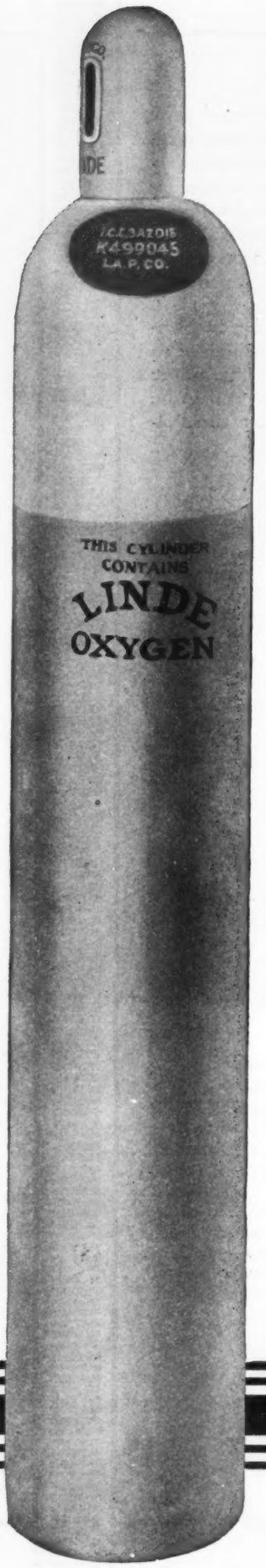
**—uniform high quality**

**—immediate delivery**

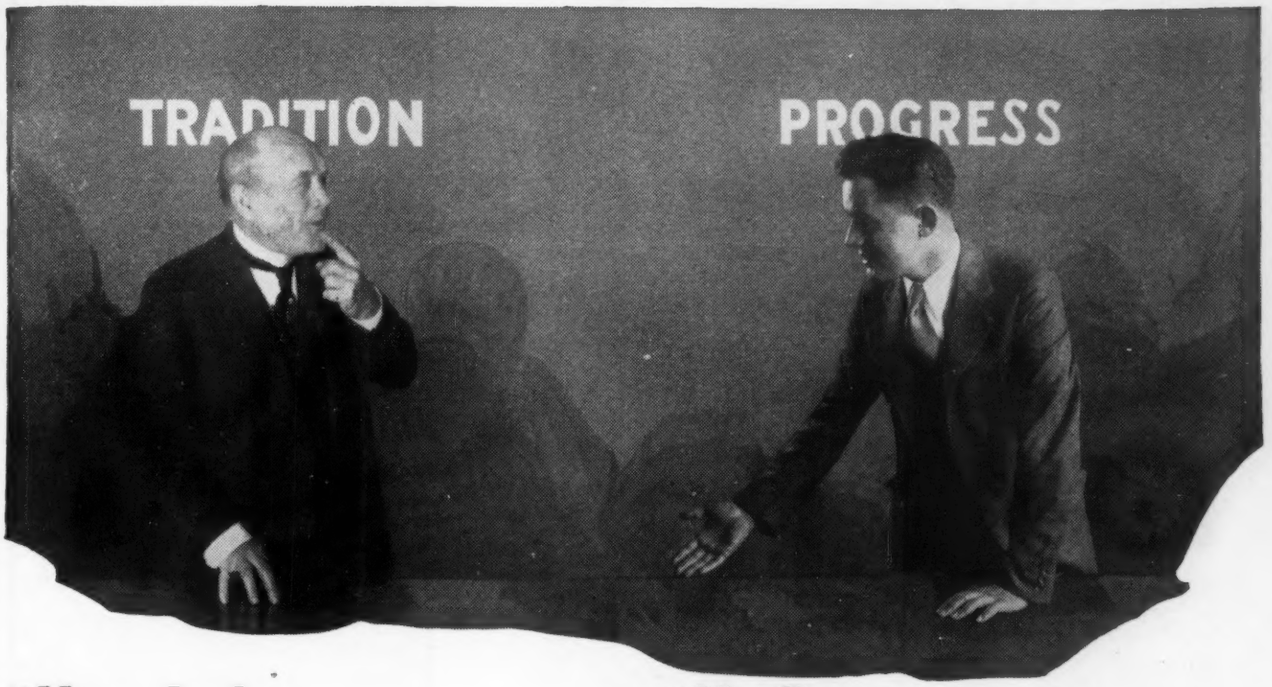
**—Linde Process Service—that insures the most economical results for Linde customers.**

THE LINDE AIR PRODUCTS CO.
*Unit of Union Carbide and Carbon Corporation*
49 PLANTS UCC 102 WAREHOUSES
General Offices: Carbide and Carbon Building
30 East 42d Street, New York

# LINDE OXYGEN



**Pop stands—still**




## *"Here, Lad—*

I don't care what you say about nearly all the factories in town adopting 'Linc-Weld' motors. That's their privilege. It is MY privilege to stick to a motor maker who doesn't change to modern doo-dads and I stand up for his rights."

## *"No, Pop—*

you stand up for his wrongs.

You STAND for the other motor, yet you SIT on 'Linc-Weld' for stepping out from traditional custom and making double size shafts and bearings for the specific purpose of obviating stand-ups in production.

You STAND for application of the other motor to our machines when 'Linc-Weld's' whole reputation is built on overload capacity and cool operation on heavy drags.

But since you DO stand for them—I know the reason:

You've been kicked around by the makers so long—and I've kicked about them so long—and the machine operators have kicked so hard and often—

—you can't do anything BUT stand."

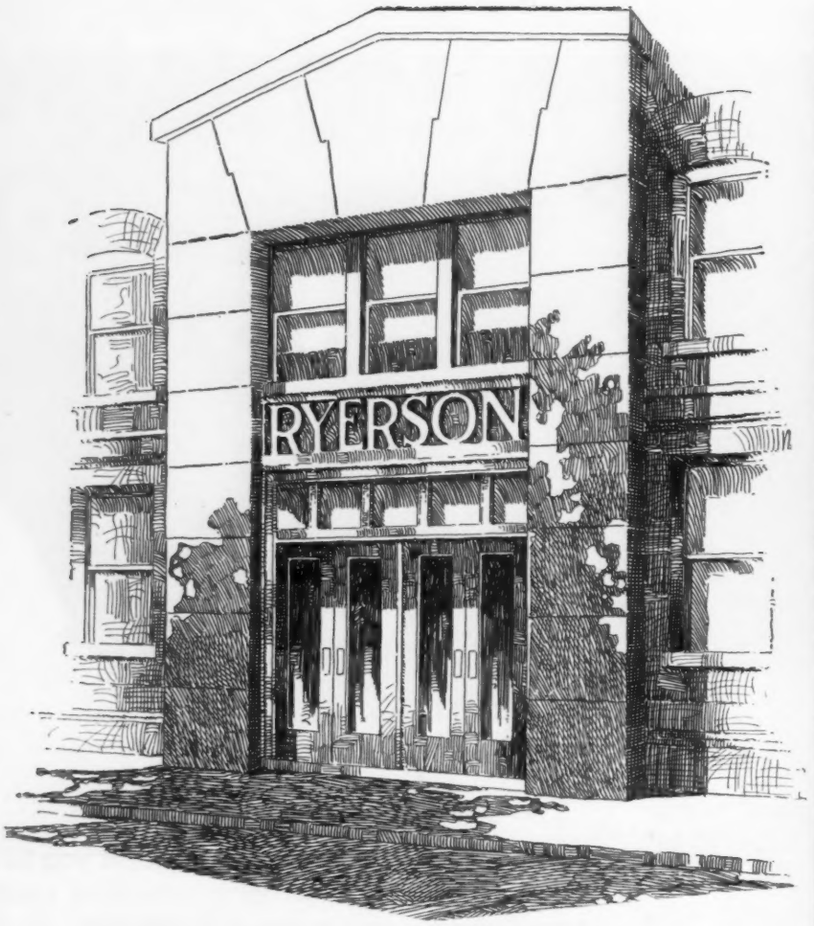
***"Linc-Weld" Superiority is due to:***

1. **Larger Shafts**
2. **Larger Bearings**
3. **Better Insulation**
4. **Stronger Frame (Steel)**
5. **Greater Overload Capacity**

**The Lincoln Electric Co., Dept. No. 20-6, Cleveland, Ohio**

M-17

**"Linc-Weld" LINCOLN MOTOR**




# Respond--ability

Complete stocks of steel and well-situated plants in various parts of the country are important. But the ability to respond to an order is the chief factor in Ryerson Steel-Service.

Your order is dispatched and shipped in accordance with methods that only years of experience could develop. No effort nor modern facility is spared in reducing the time between the receipt and the shipment of an order. Speed is the watchword.

| | | | |
|---|---|---|---|
| Bars | Strip Steel | Sheets | Babbitt |
| Shapes | Refined Iron | Rivets | Boiler Fittings |
| Structurals | Welding Rod | Bolts | Concrete Reinforcing |
| Rails | Tubes | Nails | Firmtread Plates |
| Shafting | Plates | Wire | Alloy Steel |
| Ascoloy | Tool Steel | Small Tools | Machinery, etc. |

*Write for the Ryerson Journal and Stock List, the "key" to Immediate Steel.*

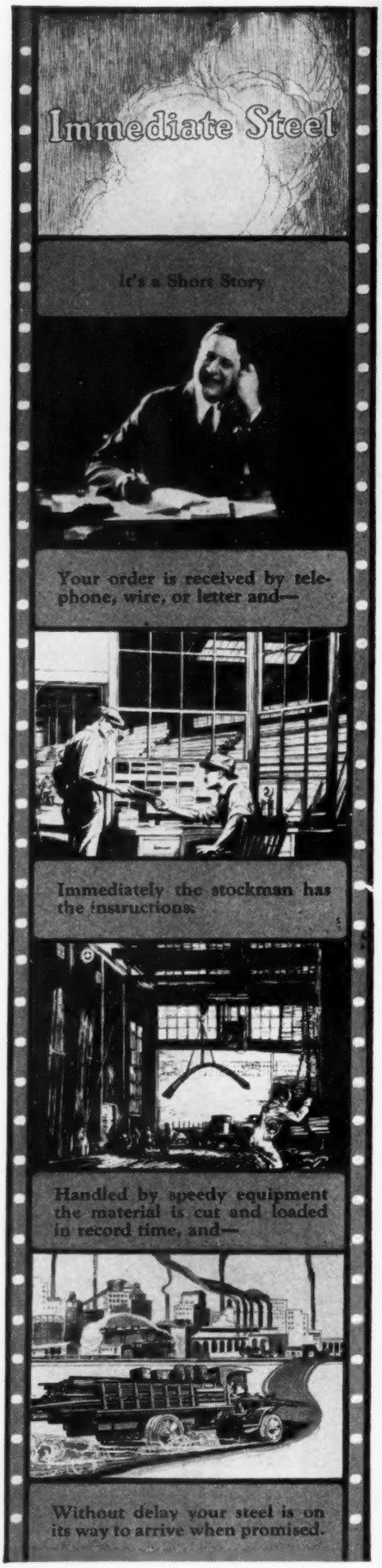
**JOSEPH T. RYERSON & SON INC.**

*Plants: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Jersey City*

*Representation in: Minneapolis, Tulsa, Houston, Newark, New York, Denver, Los Angeles, San Francisco*

# RYERSON

## 85 YEARS OF STEEL-SERVICE


Immediate Steel
It's a Short Story
Your order is received by telephone, wire, or letter and—
Immediately the stockman has the instructions.
Handled by speedy equipment the material is cut and loaded in record time, and—
Without delay your steel is on its way to arrive when promised.

*Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum. Can be equipped with power operated loading hopper.*

# LOGEMANN SCRAP METAL PRESSES

**Hydraulically compressed scrap commands at all times the *best price,* and can be conveniently stored and held for favorable markets; it is easily handled; it practically eliminates corrosion; it saves much time in remelting; cars can be easily loaded to capacity.**

***LOGEMANN Presses* are built in several types and sizes to suit all requirements.**

***You cannot go wrong on a LOGEMANN—it's a money maker from the day it is set in operation.***

## PIONEERS!

**LOGEMANN Scrap Metal Presses, pioneers in this industry, enjoy an enviable reputation for long life and economical operation. They are in daily use in practically every large sheet mill, stamping plant, scrap yard, and in metal-working establishments of all kinds.**

**Our many years of accumulated experience, and services of our Engineering Department are at the disposal of all plants accumulating metal scrap of any kind.**

**LOGEMANN BROTHERS COMPANY, 3126 Burleigh St., MILWAUKEE, WIS.**

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American Adamite Co., The, 12th and Etna Sts., Pittsburgh, Pa.

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Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.

**BARS (Concrete Reinforcing)**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Migret, Rene, 7 Boulevard DeFontaine, Charlerol, Belgium.
Nicetown Plate Washer Co., Inc., Juaniata & Clarissa Sts., Nicetown, Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

**BARS (Iron)**
Brown Wales Co., 493 C St., Boston, Mass.

**BARS (Iron)**
Bethlehem Steel Co., Bethlehem, Pa.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.

**BARS (Steel)**
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Keystone Drawn Steel Co., Spring City, Pa.
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Timken Roller Bearing Co., The, Canton, O.
Youngstown Sheet & Tube Co., Youngstown, O.

**BEAMS, CHANNELS, ANGLES, ETC.**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Migret, Rene, 7 Boulevard DeFontaine, Charlerol, Belgium.
Phoenix Iron Co., The, 20 So. 15th, Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

**BEARINGS (Ball)**
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

**BEARINGS (Journal)**
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.

**BEARINGS (Motor)**
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

**BEARINGS (Roller)**
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

**BEARINGS (Tapered Roller)**
Timken Roller Bearing Co., The, Canton, O.

**BEARINGS (Thrust)**
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

**BEARINGS AND BUSHINGS (Brass and Bronze)**
Erie Bronze Co., 402 W. 19th St., Erie, Pa.

**BENCH LEGS (Steel)**
Lupton's, David, Sons Co., 2225 Allegheny St., Philadelphia, Pa.

**BENDING AND STRAIGHTENING MACHINES**
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.

**BENZOL AND TOLUOL RECOVERY PLANTS**
Kopper Construction Co., The, Union Trust Bldg., Pittsburgh, Pa.

**BILLETS (Alloy and Carbon Steel)**
Central Alloy Steel Corp., Massillon, O.
Hausman & Wimmer Co., The, First National Bank Bldg., Pittsburgh, Pa.
Washburn Wire Co., Phillipsdale, R. I.

**BILLETS (Die Stock Steel)**
Hausman & Wimmer Co., The, First National Bank Bldg., Pittsburgh, Pa.

**BILLETS (Forging)**
Bethlehem Steel Co., Bethlehem, Pa.
Central Alloy Steel Corp., Massillon, O.
Hausman & Wimmer Co., The, First National Bank Bldg., Pittsburgh, Pa.
Heppenstall Forge & Knife Co., 47th and Hatfield Sts., Pittsburgh, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**

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PHOENIX CHILL ROLLS

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**BILLETS (Forging, Alloy Steel)**
Bethlehem Steel Co., Bethlehem, Pa.

**BILLETS (Re-Rolling)**
Hausman & Wimmer Co., The, First National Bank Bldg., Pittsburgh, Pa.

**BILLETS AND BLOOMS**
Bethlehem Steel Co., Bethlehem, Pa.
Donner Steel Co., Inc. P. O. Box 1000, Buffalo, N. Y.
Hausman & Wimmer Co., The, First National Bank Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 South La Salle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Interstate Iron & Steel Co., 104 S. Michigan Ave., Chicago.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

**BILLETS & SLABS**
Hausman & Wimmer Co., The, Clark Bank Bldg., Pittsburgh, Pa.

**BLAST FURNACES — See FURNACES (Blast)**

**BLOWERS**
Bailey, Wm. M., Co., Magee Bldg., Pittsburgh, Pa.
General Electric Co., Schenectady, N. Y.
Ingersoll-Rand Co., 11 Broadway, New York City.
Strong, Carlisle & Hammond Co., 1392 W. 3rd St., Cleveland, Ohio.

**BLOWERS (Rotary Positive)**
Roots, P. H. & F. M., Co., Connersville, Ind.

**BLOW PIPES (Brazing, Welding, Cutting, Etc.)**
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**BLUE PRINT FILES**
Hamilton Mfg. Co., Two Rivers, Wis.

**BOILER HEADS**
Bethlehem Steel Co., Bethlehem, Pa.

**BOILER SETTINGS & CHIMNEYS**
Detrick, M. H., Co., 140 S. Dearborn St., Chicago, Ill.
Rust Engineering Co., American Bank Bldg., Pittsburgh, Pa.

**BOILER TUBES — See TUBES (Boiler)**

**BOILER WALL COATING**
Celite Products Co., 1320 So. Hope St., Los Angeles, Calif.

**BOILERS**
Babcock & Wilcox Co., The, 85 Liberty St., New York City.
Combustion Engineering Corp., 200 Madison Ave., New York City.

**BOLT AND NUT MACHINERY**
Landis Machine Co., Waynesboro, Pa.
National Machinery Co., Tiffin, O.

**BOLTS**
Bethlehem Steel Co., Bethlehem, Pa.
Brown Wales Co., 493 C St., Boston, Mass.
Clark Bros. Bolt Co., Milldale, Conn.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Kirk-Latty Co., 1971 W. 85th St., Cleveland, O.
Lake Erie Bolt & Nut Co., 915 E. 63rd St., Cleveland, O.
Lamson & Sessions Co., The, 2188 Scranton Rd., Cleveland, O.
Michigan Screw Co., S. Hosmer Ave., Lansing, Mich.
Neely Nut & Bolt Co., 2101 Wharton St., Pittsburgh.
Oliver Iron & Steel Corp. S. 10th and Muriel St., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, Ohio.
Rockford Bolt Co., 220 Mill St., Rockford, Ill.
Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

**BOLTS & NUTS (Brass & Bronze)**
Lamson & Sessions Co., The, 2188 Scranton Rd., Cleveland, O.

**BOOKS (Technical)**
Penton Publishing Co., Cleveland, O.

**BORING MACHINES (Horizontal)**
Diamond Clamp & Flask Co., Richmond, Ind.

**BORING MILLS**
Shaw Crane-Putnam Mach. Co., 100 E. 42nd St., New York.

**BOXES (Carbonizing)**
Farrell-Cheek Steel Foundry Co., Sandusky, O.

**BOXES (Open Hearth Charging)**
Strong Steel Foundry Co., 33 Norris St., Buffalo, N. Y.

**BOXES (Steel)**
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

**BRAKES (Crane)**
Electric Controller & Mfg. Co., 2698 E. 79th St., Cleveland.

**BRAKES (Electric)**
Cutler-Hammer Mfg. Co., The, Milwaukee, Wis.
Electric Controller & Mfg. Co., 2698 E. 79th St., Cleveland, O.
General Electric Co., Schenectady, N. Y.

**BRASS**
Williams & Co., Inc., 901-37 Penna Ave., Pittsburgh, Pa.

**BRICK (Silica, Magnesia, Chrome, Fire Clay)**
General Refractories Co., 106 S. 16th St., Philadelphia, Pa.
Harbison-Walker Refractories Co., Farmers Bk. Bldg., Pittsburgh.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Stowe-Fuller Refractories Co., 1659 Union Trust Bldg., Cleveland, O.
U. S. Refractories Corp., Mt. Union, Pa.

**BRICK (Insulating) — See INSULATING BRICK**

**BRIDGE CRANES (Ore and Coal Handling)**
Wellman-Seaver-Morgan Co., The, 7025 Central Ave., Cleveland, O.

**BRIDGES, BUILDINGS, VIADUCTS, STACKS (Steel)**
American Bridge Co., 71 Broadway, New York City.
Austin Co., The, 16112 Euclid Ave., Cleveland, O.
Belmont Iron Works, 22nd and Washington Ave., Philadelphia.
Eichleay, John, Jr., Co., S. 20th and Wharton, Pittsburgh, Pa.
McClintic-Marshall Co., Oliver Bldg., Pittsburgh, Pa.
Morgan Engineering Co., Alliance, Ohio.
Mt. Vernon Bridge Co., Mt. Vernon, Ohio.
Phoenix Bridge Co., 20 S. 15th St., Philadelphia, Pa.
Steel Plate Products Co., Pottstown, Pa.

**BRONZE (Centrifugally Cast)**
Shenango-Penn Mold Co., Oliver Bldg., Pittsburgh, Pa.

**BRONZE (Manganese)**
Bethlehem Steel Co., Bethlehem, Pa.

**BUCKETS (Clam Shell)**
Blaw-Knox Co., 602 Farmers Bk. Bldg., Pittsburgh
Brosius, Edgar E., Sharpsburg P. O., Pittsburgh, Pa.
Harnischfeger Corp., 3811 National Ave., Milwaukee, Wis.
Industrial Brownhoist Corp., 4403 St. Clair Ave., Cleveland, O.
Owen Bucket Co., The, 6013 Breakwater Ave., Cleveland.
Wellman-Seaver-Morgan Co., The, 7025 Central Ave., Cleveland, O.
Williams, G. H., Co., 611 Hayburger Lane, Erie, Pa.

**BUCKETS (Dragline)**
Blaw-Knox Co., 602 Farmers Bk. Bldg., Pittsburgh.

**BUCKETS (Dumping)**
Atlas Car & Mfg. Co., 1140 Ivanhoe Rd., Cleveland, O.

**BUCKETS (Elevator)**
Hendrick Mfg. Co., 43 Dundaff St., Carbondale, Pa.

**BUFFING MACHINES**
Hisey-Wolf Machine Co., The, Cincinnati, Ohio.

**BUILDINGS (Industrial)**
Austin Co., The, 16112 Euclid Ave., Cleveland, O.
Blaw-Knox Co., 602 Farmers Bk. Bldg., Pittsburgh.

**BUILDINGS (Steel)—See BRIDGES BUILDINGS, VIADUCTS, STACKS (Steel)**

**BULLDOZERS**
Beatty Machine & Mfg. Co., Hammond, Ind.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.

**BURNERS (Acetylene) — See TORCHES AND BLOWERS (Acetylene, Blow, Oxy-acetylene)**

**BURNERS (Automatically Regulated)**
American Heat Economy Bureau, Inc., Wabash Bldg., Pittsburgh, Pa.

**BURNERS (Fuel, Oil, Gas, Combination)**
Best, W. N., Corp., 101 W. 31st St., New York City
Maehler, Paul, Co., The, 2210 W. Lake St., Chicago, Ill.
Strong, Carlisle & Hammond Co., The, 1392 W. 3rd St., Cleveland, Ohio.
Surface Combustion Co., 2375 Dorr St., Toledo, Ohio.

**BY-PRODUCT PLANTS**
Koppers Construction Co., The, Union Trust Bldg., Pittsburgh.

**CAN MAKING MACHINERY**
Bliss, E. W., Co., 53rd St. and 2nd Ave., Brooklyn, N. Y.

**CARBON BURNING APPARATUS**
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**CAR DUMPERS**
Wellman-Seaver-Morgan Co., The, 7025 Central Ave., Cleveland, O.

**CAR PULLERS (Electric Capstan)**
Sprague Electric Hoist Division of the Shepard Electric Crane & Hoist Co., 30 Church St., New York City.

**CARS (Industrial and Mining)**
Atlas Car & Mfg. Co., 1140 Ivanhoe Rd., Cleveland, O.
Bethlehem Steel Co., Bethlehem, Pa.

**CARS (Ingot and Open Hearth Charging)**
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.

**CASTINGS (Acid Resisting)**
Southern Manganese Steel Co., St. Louis, Mo.

**CASTINGS (Acid Resisting—Brass, Bronze and Aluminum)**
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.

**CASTINGS (Alloy Steel)**
Bethlehem Steel Co., Bethlehem, Pa.
Chicago Steel Foundry Co., Kedzie Ave and 37th St., Chicago.
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Industrial Steel Casting Co., Toledo, O.
National Alloy Steel Co., Blawnox, Pa.
Sivyer Steel Casting Co., Milwaukee, Wis.
Southern Manganese Steel Co., St. Louis, Mo.
Treadwell Engineering Co., Easton, Pa.
Union Steel Castings Co., 62nd and Butler Sts., Pittsburgh, Pa.

**CASTINGS (Bessemer Iron)**
Valley Mould & Iron Corp., Hubbard, Ohio.

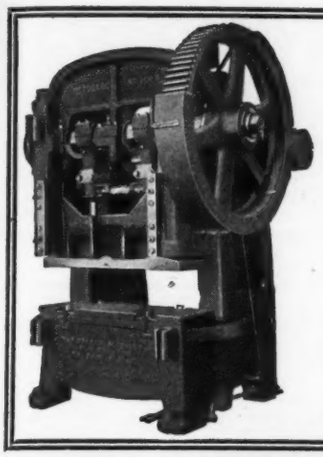
**CASTINGS (Brass, Bronze, Copper, Aluminum)**
American Abrasive Metals Co., 50 Church St., New York City.
Bethlehem Steel Co., Bethlehem, Pa.
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Erie Bronze Co., 402 W. 19th St., Erie, Pa.
Enterprise Brass Works, Muskegon, Mich.
General Bronze Co., 3216 Smallman St., Pittsburgh.
Hill-Wallisch Bronze Co., 32nd and Smallman Sts., Pittsburgh, Pa.
Mesta Machine Co., Homestead, Pa.

**CASTINGS (Die) See DIE CASTINGS**

**CASTINGS (Electric Steel)**
Chicago Steel Foundry Co., Kedzie Ave. & 37th St., Chicago, Ill.
Crucible Steel Castings Co., The, Almira and W. 84th St., Cleveland, O.
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Industrial Steel Casting Co., Toledo, O.
Maynard Electric Steel Castings Co., 2-12 Kilbourn Rd., Milwaukee, Wis.
Pittsburgh Electric Furnace Corp., P. O. Box 1125, Pittsburgh, Pa.
Sivyer Steel Casting Co., Milwaukee, Wis.
West Steel Castings Co., The, 805 E. 70th St., Cleveland, O.

**CASTINGS (Gray Iron)**
Bethlehem Steel Co., Bethlehem, Pa.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Cascade Foundry Co., 19th & Plum Sts., Erie, Pa.
Forest City-Walworth Run Foundries, W. 27th & Nickel Plate R. R., Cleveland, Ohio.
Lake Shore Engine Works, Marquette, Mich.
Mackintosh-Hemphill Co., 12th and Etna Sts., Pittsburgh, Pa.
Marietta Hollow Ware & Enameling Co., The, Marietta, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
National Roll & Foundry Co., The, Avonmore, Pa.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.
Treadwell Engineering Co., Easton, Pa.
Wheeling Mold & Foundry Co., Wheeling, W. Va.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**



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**CASTINGS (Malleable)**
Iowa Malleable Iron Co., Fairfield, Iowa.
Link-Belt Co., 910 S. Michigan Ave., Chicago, Ill.
Marion Malleable Iron Works, Marion, Ind.
Meeker Foundry Co., Clay & Ogden Sts., Newark, N. J.
Peoria Malleable Castings Co., Peoria, Ill.
Vermillion Malleable Iron Co., Hoopeston, Ill.

**CASTINGS (Nickel Chromium)**
Chicago Steel Foundry Co., Kedzie Ave. at 37th St., Chicago, Ill.

**CASTINGS (Steel)**
American Adamite Co., The 12th & Etna Sts., Pittsburgh, Pa.
American Steel Foundries, 410 No. Michigan Ave., Chicago, Ill.
Atlas Steel Castings Co., 1963 Elmwood ave., Buffalo, N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Chicago Steel Foundry Co., Kedzie Ave. at 37th St., Chicago, Ill.
Columbia Steel Corp., Balfour Bldg., San Francisco, Calif.
Commercial Steel Castings Co., The, Marion, O.
Crucible Steel Castings Co., The, Almira and W. 84th St., Cleveland, O.
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Industrial Steel Casting Co., Toledo, O.
Mackintosh-Hemphill Co., Pittsburgh, Pa.
Maynard Electric Steel Castings Co., 2-12 Kilbourn Rd., Milwaukee, Wis.
Mesta Machine Co., Homestead, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
National Alloy Steel Co., Blawnox, Pa.
National Roll & Foundry Co., The, Avonmore, Pa.
Reliance Steel Casting Co., 28th & Smallman Sts., Pittsburgh, Pa.
Sharon Foundry Co., Sharon, Pa.
Sivyer Steel Casting Co., Milwaukee, Wis.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Strong Steel Foundry Co., 33 Norris St., Buffalo, N. Y.
Treadwell Engineering Co., Easton, Pa.
Union Steel Castings Co., 62nd and Butler Sts., Pittsburgh, Pa.
West Steel Castings Co., The, 805 E. 70th St., Cleveland, O.
Wheeling Mold & Foundry Co., Wheeling, W. Va.

**CASTINGS (Worm & Gear Bronze)**
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.

**CASTORS (Plate Mills)—See PLATE CASTORS**

**CEMENT (High Temperature)**
General Refractories Co., 106 S. 16th St., Philadelphia, Pa.
Harbison-Walker Refractories Co., Farmers Bk. Bldg., Pittsburgh.

**CEMENT MACHINERY**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.

**CENTRAL STATION EQUIPMENT**
General Electric Co., Schenectady, N. Y.

**CHAINS (Crane and Hoist)**
American Chain Co., Bridgeport, Conn.
Carroll Chain Co., The, 265 Hosack St., Columbus, O.

**CHAINS (Power Transmission)**
Link-Belt Co., 910 So. Michigan Ave., Chicago, Ill.

**CHAINS FOR ALL PURPOSES**
American Chain Co., Bridgeport, Conn.
Carroll Chain Co., The, 265 Hosack St., Columbus, O.

**CHAPLETS**
Erdle Perforating Co., 171 York St., Rochester, N. Y.

**CHARCOAL**
Hillman Coal & Coke Co., First National Bank Bldg., Pittsburgh, Pa.

**CHARGING MACHINES (Cupola)**
Roots, P. H. & F. M., Co., Connersville, Ind.
Shepard Electric Crane & Hoist Co., 358 Schuyler Ave., Montour Falls, N. Y.

**CHEMICALS**
American Chemical Paint Co., Ambler, Pa.
Ford, The J. B., Co., Wyandotte, Mich.

**CHISEL BLANKS**
Hunter Saw & Machine Co., 5656 Butler St., Pittsburgh, Pa.

**CHROME ORE**
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Samuel, Frank, & Co., Harrison Bldg., Philadelphia, Pa.

**CHROMIUM METAL**
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.

**CHUCKING MACHINES (Automatic, Multiple spindle)**
National Acme Co., E. 131st St. and Coit Rd., Cleveland, O.

**CHUCKS (Grinding)**
Heppenstall Forge & Knife Co., 47th and Hatfield, Pittsburgh, Pa.

**CINDER MILLS**
Whiting Corp., Harvey, Ill.

**CLAMPS (Plate Lifting)**
Mirkil, H. Hays, 1011 Chestnut St., Philadelphia, Pa.

**CLEANERS (Glass and Window)**
Gerson Stewart Corp., The, E. 76th St. & W. & L. E. R. R., Cleveland, O.

**CLEANERS (Metal)—See METAL CLEANERS**

**CLEANING SPECIALTIES**
American Chemical Paint Co., Ambler, Pa.
Ford, The J. B., Co., Wyandotte, Mich.

**CLUTCH CONES**
Transue & Williams Steel Forging Corp., Alliance, O.

**CLUTCHES**
Johnson, Carlyle, Machine Co., The, Manchester, Conn.

**CLUTCHES (Cut-Off Coupling)**
Johnson, Carlyle, Machine Co., The, Manchester, Conn.

**CLUTCHES (Friction)**
Johnson, Carlyle, Machine Co., The, Manchester, Conn.
Jones, W. A., Foundry & Machine Co., 4437 W. Roosevelt Ave., Chicago, Ill.

**COAL AND COKE**
Cleveland-Cliffs Iron Co., Union Trust Bldg., Cleveland, O.
Eaton, Rhodes & Co., First National Bank Bldg., Cincinnati, O.
Hanna, The M. A., Co., Leader Bldg., Cleveland, O.
Hillman Coal & Coke Co., First National Bank Bldg., Pittsburgh, Pa.
Park & Williams, Real Estate Trust Bldg., Philadelphia, Pa.
Pickands, Mather & Co., Union Trust Bldg., Cleveland, O.
Pilling & Co., Inc., 1500 Chestnut St., Philadelphia, Pa.
Pittsburgh Coal Co., Oliver Bldg., Pittsburgh, Pa.
Rogers Brown & Crocker Bros., Inc., 21 E. 40th St., New York City.
Semet Solvay Co., 61 Broadway, New York City.
Snyder, W. P., Co., Oliver Bldg., Pittsburgh, Pa.
Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham, Ala.

**COAL CRUSHERS AND PULVERIZERS**
Bartlett, C. O., & Snow Co., 6213 Harvard Ave., Cleveland, O

**COAL, ORE and ASH HANDLING MACHINERY**
Bartlett, C. O., & Snow Co., 6213 Harvard Ave., Cleveland, O.
Industrial Brownhoist Corp., 4403 St. Clair Ave., Cleveland, O.
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Farrel-Birmingham Co., Inc., 344 Vulcan St., Buffalo, N. Y.
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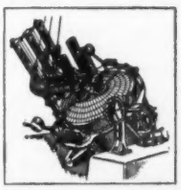

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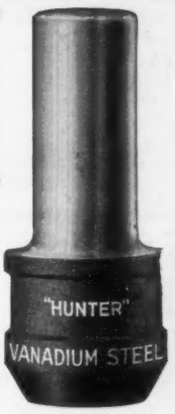


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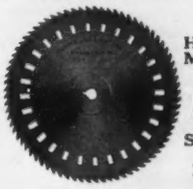

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Williams, J. H., & Co., 400 Vulcan St., Buffalo, N. Y.

**FORGINGS (Hollow Bored)**
National Forge & Ordnance Co., Irvine, Warren Co., Pa.

**FORGINGS (Iron and Steel)**
Bay City Forge Co., Erie, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Bradley, C. C., & Son, Inc., 432 N. Franklin St., Syracuse, N. Y.
Drop Forging Co. of New York, 324 West Side Ave., Jersey City, N. J.
Heppenstall Forge & Knife Co., 47th and Hatfield Sts., Pittsburgh, Pa.
Leard, Wm., Co., The, New Brighton, Pa.
Mesta Machine Co., Homestead, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
National Forge & Ordnance Co., Irvine, Warren Co., Pa.
Philadelphia Steel & Iron Co., Commercial Trust Bldg., Philadelphia, Pa.
Rockford Drop Forge Co., Rockford, Ill.
Steel Car Forge Co., 410 Frick Bldg., Pittsburgh, Pa.
Transue & Williams Steel Forging Corp., Alliance, O.
Vanadium Corp. of America, 120 Broadway, New York City.
Williams, J. H., & Co., 400 Vulcan St., Buffalo, N. Y.

**FORGINGS (Upset)**
Neely Nut & Bolt Co., 2101 Wharton St., Pittsburgh.

**FROGS AND SWITCHES**
Bethlehem Steel Co., Bethlehem, Pa.

**FUEL OIL BURNING SYSTEMS**
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**FURNACE CONTROLS (Open Hearth)**
Morgan Construction Co., Worcester, Mass.

**FURNACES (Annealing, Case Hardening and Steel Treating)**
Chapman-Stein Co., The, Mt. Vernon, O.
Costello Engineering Co., 519 Oliver Bldg., Pittsburgh, Pa.
Hagan, George J., Co., Chamber of Commerce Bldg., Pittsburgh, Pa.
Naismith, George, & Son, Highland Bldg., Pittsburgh, Pa.
Strong, Carlisle & Hammond Co., 1392 W. 3rd St., Cleveland, O.
Surface Combustion Co., 2375 Dorr St., Toledo, Ohio.
Westinghouse Electric & Mfg. Co., (Industrial Heating Dept.) Mansfield, Ohio.

**FURNACES (Blast)**
Brassert, H. A., & Co., 510 So. Michigan Ave., Chicago, Ill.
Freyn Engineering Co., 310 S. Michigan Ave., Chicago.
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.
Mt. Vernon Bridge Co., Mt. Vernon, O.

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Strong, Carlisle & Hammond Co., The, 1392 West 3rd St., Cleveland, Ohio.
Surface Combustion Co., 2375 Dorr St., Toledo, Ohio.

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Strong, Carlisle & Hammond Co., 1392 W. 3rd St., Cleveland, O.
Swindell, Wm., & Brothers Co., P. O. Box 1753, Pittsburgh, Pa.
Westinghouse Electric & Mfg. Co., (Industrial Heating Dept.) Mansfield, Ohio.

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General Electric Co., Schenectady, N. Y.
Hagan, George J., Co., Chamber of Commerce Bldg., Pittsburgh, Pa.
Payne, N. B., & Co., 25 Church St., New York City.
Pittsburgh Electric Furnace Co., 32nd St. and Putney Way, Pittsburgh, Pa.

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Laughlin, Alex, & Co., First National Bank Bldg., Pittsburgh, Pa.
Naismith, George, & Son, Highland Bldg., Pittsburgh, Pa.
Smythe, S. R., Co., Oliver Bldg., Pittsburgh, Pa.
Wellman-Seaver-Morgan Co., The, 7025 Central Ave., Cleveland, O.

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Naismith, George, & Son, Highland Bldg., Pittsburgh, Pa.

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Costello Engineering Co., 519 Oliver Bldg., Pittsburgh, Pa.
Surface Combustion Co., 2375 Dorr St., Toledo, Ohio.

**FURNACES (Soaking Pits)**
Naismith, George, & Son, Highland Bldg., Pittsburgh, Pa

**FURNACES (Steel Mill)**
Chapman-Stein Co., The, Mt. Vernon, Ohio.
Morgan Construction Co., Worcester, Mass.
Naismith, George & Son, Highland Bldg., Pittsburgh, Pa.
Rust Engineering Co., American Bank Bldg., Pittsburgh, Pa.
Surface Combustion Co., 2375 Dorr St., Toledo, Ehio

**FURNACES (Tube Welding and Bending)**
Naismith, George, & Son, Highland Bldg., Pittsburgh, Pa.

**GAGES (Welding)**
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**GAGGERS**
Franklin Core Rod & Gagger Co., Franklin, Pa.

**GALVANIZING**
Cattie Brothers Corp., Tioga St., Philadelphia, Pa.
Cattie, Joseph P., & Brothers, Gaul & Letterly Sts., Philadelphia, Pa.
Hanlon-Gregory Galvanizing Co., 5515 Butler St., Pittsburgh, Pa.
Pittsburgh Electro Galvanziing Co., 5th & P. R. R., Sharpsburg, Pa.

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Cattie, Joseph P., & Brothers, Gaul & Letterly Sts., Philadelphia, Pa.
Hanlon-Gregory Galvanizing Co., 5515 Butler St., Pittsburgh, Pa.

**GALVANIZING PLANTS (For Sheets)**
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Prest-O-Lite Co., Inc., The, 30 E. 42nd St., New York City.

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Flinn & Dreffein Co., 435 S. Dearborn St., Chicago, Ill.
Koppers Construction Co., The, Union Trust Bldg., Pittsburgh, Pa.
Morgan Construction Co., Worcester, Mass.
U. S. Cast Iron Pipe & Foundry Co., Burlington, N. J.
Wellman-Seaver-Morgan Co., The, 7025 Central Ave., Cleveland, O.
Wood, R. D., & Co., 400 Chestnut Ave., Philadelphia, Pa.

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Transue & Williams Steel Forging Corp., Alliance, Ohio.

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Farrel-Birmingham Co., Inc., 344 Vulcan St., Buffalo, N. Y.

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Johnson, Carlyle, Machine Co., Manchester, Conn.

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Chicago Gear Mfg. Co., 2827 Fulton St., Chicago, Ill.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Farrel-Birmingham Co., Inc., 344 Vulcan St., Buffalo, N. Y.
Grant Gear Works, Second and B Sts., Boston, Mass.
James, D. O., Mfg. Co., 1114 W. Monroe St., Chicago, Ill.
Johnson, Carlyle, Machine Co., Manchester, Conn.
Jones, W. A., Foundry & Machine Co., 4437 W. Roosevelt Ave., Chicago, Ill.
Mackintosh-Hemphill Co., Pittsburgh, Pa.
Philadelphia Gear Works, E. Tioga, Philadelphia, Pa.
Simonds Mfg. Co., 25th St. and Liberty Ave., Pittsburgh, Pa.

**GENERATING SETS**
General Electric Co., Schenectady, N. Y.

**GENERATORS (Acetylene) — See ACETYLENE GENERATORS**

**GENERATORS (Electric)**
General Electric Co., Schenectady, N. Y.
Lincoln Electric Co., The, Colt Rd. and Kirby Ave., Cleveland, O.

**GLOVES (Asbestos)**
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**GOGGLES (Welding)**
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

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American Abrasive Metals Co., 50 Church St., New York City.
Blaw-Knox Co., 602 First National Bank Bldg., Pittsburgh, Pa.
Hendrick Mfg. Co., 43 Dundaff St., Carbondale, Pa.

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206 I F D

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Hisey-Wolf Machine Co., The, Cincinnati, Ohio.
Ingersoll-Rand Co., 11 Broadway, New York City.
Sullivan Machinery Co., 78 E. Adams St., Chicago, Ill.

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Hisey-Wolf Machine Co., The, Cincinnati, Ohio.

**GRINDERS (Tool)**
Hisey-Wolf Machine Co., The, Cincinnati, Ohio.

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Landis Tool Co., Waynesboro, Pa.
Norton Co., Worcester, Mass.

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Norton Co., Worcester, Mass.

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Cleveland Pneumatic Tool Co., 3734 E. 78th St., Cleveland, O.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago.
Ingersoll-Rand Co., 11 Broadway, New York City.

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Bliss, E. W., Co., 53rd St. and 2nd Ave., Brooklyn, N. Y.
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Erie Foundry Co., Erie, Pa.
Morgan Engineering Co., Alliance, Ohio.
Toledo Machine & Tool Co., Toledo, O.

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Nazel Engineering & Machine Works, 4041 N. 5th St., Philadelphia, Pa.

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Bradley, C. C., & Son, Inc., 432 No. Franklin St., Syracuse, N. Y.
Erie Foundry Co., Erie, Pa.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.

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Erie Foundry Co., Erie, Pa.
Morgan Engineering Co., Alliance, Ohio.

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Myers, F. E., & Brothers Co., The, Ashland, Ohio.

**HANGERS (Shaft)**
Hyatt Roller Bearing Co., Newark, N. J.

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Shore Instrument & Mfg. Co., Van Wyck Ave. & Carll St., Jamaica, N. Y.

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Maehler, Paul, Co., The, 2210 W. Lake St., Chicago, Ill.

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Blaw-Knox Co., 602 Farmers Bank Bldg., Pittsburgh, Pa.

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Lakeside Steel Improvement Co., 5418 Lakeside Ave., Cleveland.

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Industrial Brownhoist Corp., 4403 St. Clair Ave., Cleveland, O.
Marion Steam Shovel Co., Marion, Ohio.
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Sprague Electric Hoist Division of the Shepard Electric Crane & Hoist Co., 30 Church St., New York City.
Treadwell Engineering Co., Easton, Pa.

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Cleveland Electric Tramrail Division of the Cleveland Crane & Engineering Co., Wickliffe, O.
General Electric Co., Schenectady, N. Y.
Harnischfeger Corp., 3811 National Ave., Milwaukee, Wis.
Roeper Crane & Hoist Works, 1729 No. 10th St., Reading, Pa.
Shepard Electric Crane & Hoist Co., 358 Schuyler Ave., Montour Falls, N. Y.
Sprague Electric Hoist Division of the Shepard Electric Crane & Hoist Co., 30 Church St., New York City.

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Ingersoll-Rand Co., 11 Broadway, New York City.
Sullivan Machinery Co., 78 E. Adams St., Chicago, Ill.

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Sullivan Machinery Co., 78 E. Adams St., Chicago, Ill.

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Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Ryerson, Joseph T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Sharon Steel Hoop Co., Sharon, Pa.
West Leechburg Steel Co., Farmers Bk. Bldg., Pittsburgh.

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Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**HOT BEDS**
Treadwell Engineering Co., Easton, Pa.

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McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

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Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

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Bethlehem Steel Co., Bethlehem, Pa.
Chambersburg—National Chambersburg, Pa.
Morgan Engineering Co., Alliance, O.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

**HYDRAULIC PRESSES — See PRESSES (Hydraulic)**

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General Electric Co., Schenectady, N. Y.

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Bethlehem Steel Co., Bethlehem, Pa.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Shenango-Penn Mold Co., Oliver Bldg., Pittsburgh, Pa.
Valley Mould & Iron Corp., Hubbard, Ohio.

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Lockhart Iron & Steel Co., Pittsburgh, Pa.
Penn Iron & Steel Co., Creighton, Pa.

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Pickands, Mather & Co., Union Trust Bldg., Cleveland, O.
Quinn, Clement K., & Co., Duluth, Minn.

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278 Illustrations

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304 I F D

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Reliance Machinery Co., 1411 Brighton Rd., Pittsburgh.
Wickes Machinery Co., Claremont and Mallory Aves., Jersey City, N. J.

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**MAGNETS (Lifting)**
Cutler-Hammer Mfg. Co., The, Milwaukee, Wis.
Electric Controller & Mfg. Co., 2698 E. 79th St., Cleveland, O.
Ohio Electric & Controller Co., 5900 Maurice Ave., Cleveland, O.

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General Refractories Co., 106 S. 16th St., Philadelphia, Pa.

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Samuel, Frank, & Co., Harrison Bldg., Pittsburgh, Pa.

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Oxweld Acetylene Co., 30 E. 42nd St., New York City.

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Wellman-Seaver-Morgan Co., The, 7025 Central Ave., Cleveland O.

**METAL (Perforated)—See PERFORATED METAL**

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Ford, The J. B., Co., Wyandotte, Mich.

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Mundt, Chas., & Sons, Johnston & Fairmount Aves., Jersey City, N. J.

**METAL STAMPINGS — See STAMPINGS**

**METAL WORKING MACHINES—See SHEET METAL WORKING MACHINERY**

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Titanium Alloy Mfg. Co., Niagara Falls, N. Y.

**METERS (Gas and Air)**
Cutler-Hammer Mfg. Co., Milwaukee, Wis.
General Electric Co., Schenectady, N. Y.
Roots, P. H. & F. M., Co., The, Connersville, Ind.

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Treadwell Engineering Co., Easton, Pa.

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Beardsley & Piper Co., 2541 N. Keeler Ave., Chicago, Ill.

**MOLDS (Ingot) — See INGOT MOLDS**

**MONEL METAL**
International Nickel Co., 67 Wall St., New York City.
Williams & Co., Inc., 901-37 Penna Ave., Pittsburgh.

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Box Crane & Hoist Corp., Janney & E. Ontario Sts., Philadelphia, Pa.
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Fairbanks Co., Broome & LaFayette Sts., New York City
Fairbanks, Morse & Co., Inc., 900 S. Wabash Ave., Chicago, Ill.
General Electric Co., Schenectady, N. Y.
Lincoln Electric Co., The, Coit Rd. and Kirby Ave., Cleveland, O.
Shepard Electric Crane & Hoist Co., 358 Schuyler Ave., Montour Falls, N. Y.

**MUCK BAR**
Bethlehem Steel Co., Bethlehem, Pa.
Samuel, Frank, & Co., Harrison Bldg., Philadelphia, Pa.

**NAILS**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Pittsburgh Steel Co., P. O. Box 72, Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

**NAILS (Coated and Galvanized)**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Youngstown Sheet & Tube Co., The, Youngstown, O.

**NICKEL**
American Mond Nickel Corp., Century Bldg., Pittsburgh, Pa.
International Nickel Co., 67 Wall St., New York City.
United States Nickel Co., New Brunswick, N. J.
Williams & Co., Inc., 901-37 Penna Ave., Pittsburgh.

**NICKEL STEEL (Cold Drawn)**
Bethlehem Steel Co., Bethlehem, Pa.

**NITROGEN (Gas)**
Linde Air Products Co., 30 E. 42nd St., New York City.

**NUTS**
Bethlehem Steel Co., Bethlehem, Pa.
Brown Wales Co., 493 C St., Boston, Mass.
Clark Bros. Bolt Co., Milldale, Conn.
Lake Erie Bolt & Nut Co., 915 E. 63rd St., Cleveland, O.
Neely Nut & Bolt Co., 2101 Wharton St., Pittsburgh.
Oliver Iron & Steel Corp. S. 10th and Muriel St., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Rhode Island Tool Co., Providence, R. I.
Rockford Bolt Co., 220 Mill St., Rockford, Ill.
Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.

**OIL (Fuel)—See FUEL OIL**

**OIL CUPS**
Gits Bros. Mfg. Co., 1940 S. Kilbourne Ave., Chicago, Ill.

**OIL PANS**
Transue & Williams Steel Forging Corp., Alliance, Ohio.

**OPEN-HEARTH FURNACES—See FURNACES (Open Hearth)**

**ORES—CHROME (Lump or Ground)**
General Refractories Co., 106 S. 16th St., Philadelphia, Pa.

**OVENS (Coke By-Product Recovery)**
Koppers Construction Co., The, Pittsburgh, Pa.

**OVENS (Core Baking)**
Maehler, Paul, Co., The, 2210 W. Lake St., Chicago, Ill.

**OVENS (Japanning, Enameling, Lacquering)**
Maehler, Paul, Co., The, 2210 W. Lake St., Chicago, Ill.

**OVENS—SPECIAL (Gas or Oil Heat)**
Maehler, Paul, Co., The, 2210 W. Lake St., Chicago, Ill.

**OXY-ACETYLENE WELDING AND CUTTING—See WELDING AND CUTTING APPARATUS AND SUPPLIES (Oxy-Acetylene Process)**

**OXYGEN IN CYLINDERS**
Air Reduction Sales Co., 342 Madison Ave., New York City.
Linde Air Products Co., 30 E. 42nd St., New York City.

**PACKING**
Jenkins Brothers, 80 White St., New York City.

**PAINT SPRAY EQUIPMENT**
Milburn, Alexander, Co., The, 1416-1428 W. Baltimore, Baltimore, Md.

**PARTITIONS & DOORS (Steel)**
Lupton's, David, Sons Co., 2225 Allegheny St., Philadelphia, Pa.

**PERFORATED METAL**
Chicago Perforating Co., 2445 W. 24th Place, Chicago, Ill.
Erdle Perforating Co., 171 York St., Rochester, N. Y.
Harrington & King Perforating Co., The, 5634 Fillmore St., Chicago, Ill.
Hendrick Mfg. Co., 43 Dundaff St., Carbondale, Pa.
Mundt, Chas., & Sons, Johnston & Fairmount Ave., Jersey City, N. J.

**PICKLING COMPOUND**
American Chemical Paint Co., Ambler, Pa.
Hearne, William M., Inc., Real Estate Trust Bldg., Philadelphia, Pa.
International Paint Corp., 13th St. & Southern Ry., E. St. Louis, Ill.

**PICKLING MACHINES**
Mesta Machine Co., Homestead, Pa.

**PICKLING TANKS**
Hauser Stander Tank Co., Cincinnati, Ohio.

**PIG IRON**
Bethlehem Steel Co., Bethlehem, Pa.
Cleveland-Cliffs Iron Co., Union Trust Bldg., Cleveland, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Eaton, Rhodes & Co., First National Bank Bldg., Cincinnati, O.
Globe Iron Co., Jackson, O.
Illinois Steel Co., 208 So. La Salle St., Chicago, Ill.
Hanna, The M. A., Co., Leader Bldg., Cleveland, O.
Pickands, Mather & Co., Union Trust Bldg., Cleveland, O.
Pilling & Co., Inc., 1500 Chestnut St., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Rogers Brown & Crocker Bros., Inc., 21 E. 40th St., New York.
Snyder, W. P., & Co., Oliver Bldg., Pittsburgh, Pa.
Stewart Furnace Co., 1854 Union Trust Bldg., Cleveland, O.
Valley Mould & Iron Corp., Hubbard, Ohio.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

**PILING (Steel Sheet)**
Bethlehem Steel Co., Bethlehem, Pa.
Wemlinger, Inc., 149 Broadway, New York City.

**PINIONS—See GEARS AND GEAR CUTTING**

**PIPE (Brass, Bronze and Copper)**
American Brass Co., 25 Broadway, New York City.

**PIPE (Cast Iron)**
United States Cast Iron Pipe & Foundry Co., Burlington, N. J.

**PIPE (Riveted and Spiral Riveted Steel)**
Abendroth & Root Mfg. Co., Woolworth Bldg., New York.

**PIPE (Steel)**
Allegheny Steel Co., Brackenridge, Pa.
Crane Co., 836 S. Michigan Blvd., Chicago, Ill.
Michigan Steel Tube Products Co., Holbrook & Buffalo Sts., Detroit, Mich.
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Petroleum Iron Works of Ohio, The, Sharon, Pa.
Pittsburgh Steel Products Co., Union Trust Bldg., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Youngstown Sheet & Tube Co., Youngstown, O.

**PIPE (Wrought Steel)**
National Tube Co., Frick Bldg., Pittsburgh, Pa.

**PIPE BENDS**
Crane Co., 836 S. Michigan Blvd., Chicago, Ill.

**PIPE CUTTING AND THREADING MACHINERY**
Aetna-Standard Engineering Co., The, Youngstown, O.
Curtis & Curtis Co., 816 Garden St., Bridgeport, Conn.
Landis Machine Co., Waynesboro, Pa.

**PIPE FITTINGS**
Crane Co., 836 S. Michigan Blvd., Chicago, Ill.
Pittsburgh Piping & Equipment Co., 43rd St. & A. V. R. R., Pittsburgh, Pa.

**PIPE MILL MACHINERY**
Mackintosh-Hemphill Co., 12th & Etna Sts., Pittsburgh.
Taylor-Wilson Mfg. Co., McKees Rocks, Pa.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**

# FORGINGS

## Added Years of Service for Your Products

AN essential factor in the success of your products is their endurance throughout many years of active production service. Such endurance must be built into the product by the infusion of long-life qualities into the vital, load-bearing parts.

Champion Drop Forgings will add value to your products in the form of assurance of longer life. Their vital load-bearing and strain-resisting ability is inherited from the steel of which they are made. Their rugged stamina insures the purchaser added years of service from your products.

THE CHAMPION MACHINE & FORGING CO.
*Cleveland, Ohio*

**CHAMPION DROP FORGINGS**

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**DROP FORGINGS**
ANY SIZE
STEEL OR BRASS
**STAMPINGS**
HEAVY DEEP DRAWN

TRANSUE & WILLIAMS STEEL FORGING CORP.
ALLIANCE, OHIO

Chicago Office
Dromgold & Glenn,
460 McCormick Bldg.

Indianapolis Office
J. F. Ludley,
Odd Fellows Bldg.

New York Office
Room 1305,
165 Broadway

Detroit Office
855 Book Bldg.

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FORGED STEEL CRUSHER BALLS

STEEL & IRON FORGINGS ALL SIZES & SHAPES

Shafts
Hooks
Gear Blanks
Die Blocks

*Forged Steel Pipe Flanges*

PHILADELPHIA STEEL & IRON CO.
Offices: 1008 Commercial Trust Bldg.
Works: 33rd and Gray's Ferry Rd., PHILADELPHIA, PA.

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WE SPECIALIZE ON
**SMALL DROP FORGINGS**

Plants centrally located and specially equipped to manufacture high quality drop forgings, up to 6 lbs.

*40 years' experience*

THE QUEEN CITY FORGING CO.
235 Tennyson St. CINCINNATI, OHIO

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**STORMS** QUALITY DROP FORGINGS
**DROP FORGING CO.**
PAGE B'LV'D.
SPRINGFIELD, MASS.

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**DIE BLOCKS, RODS, RAMS AND TRIMMER STEEL**
*for the Drop Forge Industry*

Heppenstall Forge & Knife Co.

Heppenstall Forge Co. Pittsburgh, Pa. Heppenstall Steel Co. Bridgeport, Conn. Offices in Principal Cities Detroit, Mich.

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**Forgings**

Hammered
Steel Forgings
All Types

Smooth Forged
Rough Turned
Finished
Hollow Bored

BAY CITY FORGE CO.
ERIE, PA.

**PIPE STRAIGHTENING MACHINES**
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Taylor-Wilson Mfg. Co., McKees Rocks, Pa.

**PIPING CONTRACTORS**
Pittsburgh Piping & Equipment Co., 43rd St. and A. V. R. R., Pittsburgh, Pa.
Power Piping Co., 829 Beaver Ave., Pittsburgh, Pa.

**PLANERS AND SHAPERS**
Shaw Crane-Putnam Mach. Co., 100 E. 42nd St., New York City.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

**PLANES (Traveling Head)**
Morton Mfg. Co., Muskegon, Mich.

**PLATE CASTORS**
Hyatt Roller Bearing Co., Newark, N. J.

**PLATES (Iron and Steel)**
American Rolling Mill Co., Middletown, O.
Bethlehem Steel Co., Bethlehem, Pa.,

**PLATES (Rolled Steel—Floor)**
American Pressed Steel Co., Commercial Trust Bldg., Philadelphia, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

**PLATES (Sheared and Universal)**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Granite City Steel Co., The, Granite City, Ill.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1219 Wabansia Ave., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Joseph T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

**PLATES (Terne and Tin)—See TIN PLATE**

**PLATING (Electro)**
Pittsburgh Electro Galvanizing Co., 5th and P. R. R., Pittsburgh, Pa.

**PLUMBING EQUIPMENT**
Crane Co., 836 S. Michigan Blvd., Chicago, Ill.

**PNEUMATIC TOOLS—See TOOLS—(Pneumatic)**

**POLE LINE HARDWARE**
Oliver Iron & Steel Corp., S. 10th and Muriel St., Pittsburgh, Pa.

**POLES (Tubular Steel)**
National Tube Co., Frick Bldg., Pittsburgh, Pa.

**PORTABLE LOADERS (Bucket or Belt)**
Link-Belt Co., 910 So. Michigan Ave., Chicago, Ill.

**PORTS (Water Cooled)**
Blaw Knox Co., 602 Farmers Bank Bldg., Pittsburgh Pa.

**POTS (Salt, Lead, Cyanide)**
Case Hardening Service Co., 2280 Scranton Rd., Cleveland, O.

**POWDERED COAL EQUIPMENT**
Combustion Engineering Corp., 200 Madison Ave., New York City.
Fuller Lehigh Co., Fullerton, Pa.

**POWER TRANSMISSION**
Jones, W. A., Foundry & Machine Co., 4437 W. Roosevelt Ave., Chicago, Ill.

**PREHEATERS**
Blaw-Knox Co., 602 Farmers Bank Bldg., Pittsburgh, Pa.
Combustion Engineering Corp., 200 Madison Ave., New York City.

**PREHEATING APPARATUS**
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**PRESSED METAL—See STAMPINGS**

**PRESSED STEEL PARTS—See STAMPINGS**

**PRESSES**
Bliss, E. W., Co., 53rd St. and 2nd Ave., Brooklyn, N. Y.
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Erie Foundry Co., Erie, Pa.
Mesta Machine Co., Homestead, Pa.
Peck, Stow & Wilcox Co., Southington, Conn.
Toledo Machine & Tool Co. Toledo, O.

**PRESSES (Die Cutting)**
Logemann Bros. Co., 3126 Burleigh St., Milwaukee, Wis.

**PRESSES (Forging)**
Morgan Engineering Co., Alliance, O.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.

**PRESSES (Hydraulic)**
Bethlehem Steel Co., Bethlehem, Pa.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Chambersburg—National Chambersburg, Pa.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Farrel-Birmingham Co., Inc., 344 Vulcan St., Buffalo, N. Y.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Morgan Engineering Co., Alliance, O.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

**PRESSES (Metal Drawing, Etc.)**
Bliss, E. W., Co., 53rd St. and 2nd Ave., Brooklyn, N. Y.

**PRESSES (Power)**
Niagara Machine & Tool Works 685 Northland Ave., Buffalo, N. Y.

**PRESSES (Scrap Bundling and Baling)**
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

**PRESSES (Shaft and Pipe Straightening—Hydraulic)**
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

**PRODUCER GAS SYSTEMS—See GAS PRODUCER PLANTS**

**PULVERIZING, CRUSHING & GRINDING MACHINERY—See CRUSHING, GRINDING & PULVERIZING MACHINERY**

**PUMPS**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Fairbanks Co., Broome & LaFayette Sts., New York City
Fairbanks, Morse & Co., Inc., 900 S. Wabash Ave., Chicago, Ill.

**PUMPS (Air Lift)**
Sullivan Machinery Co., 78 E. Adams St., Chicago, Ill.

**PUMPS (Boiler Feed)**
Ingersoll-Rand Co., (Cameron), 11 Broadway, New York City.

**PUMPS (Centrifugal)**
Ingersoll-Rand Co., (Cameron), 11 Broadway, New York City.

**PUMPS (Gas)**
Roots, P. H. & F. M., Co., Connersville, Ind.

**PUMPS (Hand and Power)**
Myers, F. E., & Brother Co., The, Ashland, O.

**PUMPS (Hydraulic)**
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

**PUMPS (Liquid Handling)**
Roots, P. H. & F. M., Co., Connersville, Ind.

**PUMPS (Steam)**
Ingersoll-Rand Co., (Cameron) 11 Broadway, New York City.

**PUNCHES (Multiple)**
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Thomas Spacing Machine Co., Fulton Bldg., Pittsburgh, Pa.

**PUNCHES AND DIES**
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.

**PUNCHING AND SHEARING MACHINERY**
Beatty Machine & Mfg. Co., Hammond, Ind.
Chambersburg—National Chambersburg, Pa.
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland O,.
Kent Owens Machine Co., 958 Wall St., Toledo, O.
Long & Allstatter Co., Hamilton, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

**RAILS**
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Frank, M. K., Union Trust Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham, Ala.

**RAILS (Girder)**
Bethlehem Steel Co., Bethlehem, Pa.

**REDUCERS (Speed—Worm and Spur)—See SPEED REDUCERS (Worm and Spur)**

**REFRACTORIES**
Carborundum Co., The, Perth Amboy, N. J.
Crescent Refractories Co., Curwensville, Pa.
General Refractories Co., 106 S. 16th St., Philadelphia, Pa.
Harbison-Walker Refractories Co., Farmers Bk. Bldg., Pittsburgh.
Illinois Clay Products Co., 214 Barber Bldg., Joliet, Ill.
Kier Fire Brick Co., Oliver Bldg., Pittsburgh, Pa.
Laclede-Christy Clay Products Co., St. Louis, Mo.
Lavino, E. J., Co., Bullitt Bldg., Philadelphia, Pa.
Norton Co., Worcester, Mass.
Queen's Run Refractories Co., Inc., Lock Haven, Pa.
Stowe-Fuller Refractories Co., The, 1650 Union Trust Bldg., Cleveland, O.
Taylor, Chas., Sons Co., The, Burns St., Cincinnati, O.

**REGISTERS (Heating and Ventilating)**
Auer Register Co., The, Payne Ave. and E. 37th St., Cleveland, O.

**REGULATORS (Compressed Gas)**
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**REGULATORS (Pressure)**
Electric Controller & Mfg. Co., 2698 E. 79th St., Cleveland.

**RHEOSTATS**
Electric Controller & Mfg. Co., 2698 E. 79th St., Cleveland, O.

**RINGS (Welded Iron and Steel)**
Akron-Selle Co., Akron, O.
American Welding Mfg. Co., The, Warren, O.

**RIVET SETS**
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Hunter Saw & Machine Co., 5656 Butler St., Pittsburgh, Pa.

**RIVETERS (Hydraulic)**
Chambersburg—National Chambersburg, Pa.

**RIVETERS (Pneumatic)**
Cleveland Pneumatic Tool Co., 3734 E. 78th St., Cleveland, O.
Hanna Engineering Works, 1766 Elston Ave., Chicago, Ill.

**RIVETING MACHINERY**
Hanna Engineering Works, 1766 Elston Ave., Chicago, Ill.
Shuster, The F. B., Co., New Haven, Conn.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

**RIVETS**
Bethlehem Steel Co., Bethlehem, Pa.
Clark Bros. Bolt Co., Milldale, Conn.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Interstate Iron & Steel Co., 104 Michigan Ave., Chicago.
Neely Nut & Bolt Co., 2101 Wharton St., Pittsburgh.
Oliver Iron & Steel Corp., S. 10th and Muriel St., Pittsburgh, Pa.
Progressive Mfg. Co. Torrington, Conn.
Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
Ryerson, Joseph T., & Son, Inc. 16th and Rockwell Sts., Chicago

**RODS (Brass, Bronze, Copper and Nickel Silver)**
American Brass Co., 25 Broadway, New York City

**RODS (Drill)**
Globe Wire Co., Sharpsburg, Pa.
Kidd Drawn Steel Co., Aliquippa, Pa.
Pittsburgh Tool Steel Wire Co. Monaca, Pa.
Vanadium Alloys Steel Co., Latrobe, Pa.
Wheelock, Lovejoy & Co., Inc., 128 Sidney St., Cambridge, Mass.

**RODS (Iron and Steel)**
Bethlehem Steel Co., Bethlehem, Pa.

**RODS (Round, Flats & Shapes)**
Washburn Wire Co., Phillipsdale, R. I.

**RODS (Welding)—See WELDING RODS**

**ROLLING DOORS AND SHUTTERS**
Kinnear Manufacturing Co., 818-868 Field Ave., Columbus, O.
Moeschl-Edwards Const. Co., The 120 W. 9th St., Covington, Ky

**ROLLING MILL BEARINGS**
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearing Corp., Stamford, Conn.

**ROLLING MILL EQUIPMENT**
Aetna-Standard Engineering Co., The, Youngstown, O.
Alliance Machine Co., The, Alliance, O.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Bliss, E. W., Co., 53rd St., Brooklyn, N. Y.
Hyde Park Foundry & Machine Co., Hyde Park, Pa.
Lewis Foundry & Machine Co., Pittsburgh, Pa.
Mackintosh-Hemphill Co., Pittsburgh, Pa.
Mesta Machine Co., Homestead, Pa.
Morgan Construction Co., Worcester, Mass.
Morgan Engineering Co., Alliance, O.
National Roll & Foundry Co., Avonmore, Pa.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.
Treadwell Engineering Co., Easton, Pa.
United Engineering & Foundry Co., Farmers Bk. Bldg., Pittsburgh.
Wellman-Seaver-Morgan Co., The, 7025 Central Ave., Cleveland, O.
Wheeling Mold & Foundry Co., Wheeling, W. Va.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**

# LARGEST BUILDERS OF THE WORLD'S LARGEST CRANES

## Alliance Products

STANDARD CRANES
Up to 430 tons capacity

STRIPPING CRANES
Up to 320 tons capacity

COMBINATION CHARGERS and STRIPPERS
Up to 200 tons capacity

Ladle Cranes
Ingot Strippers
Soaking Pit Cranes
Open Hearth Charging Machines
Slab and Billet Charging and Drawing Machines
Gantry Cranes
Ore and Coal Bridges
Car Dumpers
Forging Manipulators
Steam Drop Forge Hammers
Coke Pushers, Levelers and Door Lifters
Coal Pier Equipment
Rolling Mill Machinery
Cement Plant Machinery
Dock Handling Equipment
Coke Oven Equipment

## *229 of 100 Ton capacity and over*

LADLE AND STANDARD CRANES

| | |
|---|---|
| 58 | 100 tons |
| 2 | 115 tons |
| 44 | 125 tons |
| 27 | 150 tons |
| 3 | 160 tons |
| 2 | 165 tons |
| 28 | 175 tons |
| 2 | 200 tons |
| 1 | 225 tons |
| 1 | 250 tons |
| 1 | 275 tons |
| 3 | 430 tons |

STRIPPING CRANES

| | |
|---|---|
| 8 | 100 tons |
| 1 | 125 tons |
| 21 | 150 tons |
| 15 | 200 tons |
| 1 | Single Ram, 320 tons |

COMBINATION CHARGERS AND STRIPPERS

| | |
|---|---|
| 3 | 100 tons |
| 1 | 125 tons |
| 3 | 150 tons |
| 4 | 200 tons |

*Give Us the Runway and We will Lift the World*

## THE ALLIANCE MACHINE CO.

ALLIANCE, OHIO, U.S.A.
*ENGINEERS AND BUILDERS*

# MORGAN

DESIGNERS-MANUFACTURERS-CONTRACTORS

Electric Traveling Cranes, Rolling Mill Machinery, Steam Hammers, Steam Hydraulic Forging Presses, Hydraulic Presses, Rock Crushers, Machine work of all kinds. Special Machinery for any purpose.

THE MORGAN ENGINEERING CO., ALLIANCE, OHIO

PUNCHING MACHINERY **BEATTY** SHEARING MACHINERY

PORTABLE CRANES

Multiple Punching Machines
Plate Shearing Machines
Bar Shearing Machines

Beatty Machine and Manufacturing Company
HAMMOND INDIANA

BUILT TO FIT YOUR NEEDS

CLEVELAND CRANES

Rugged Construction Has Earned A Reputation for Dependable Service

The Cleveland Crane & Engineering Co
Wickliffe, Ohio

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ELECTRIC OR HAND CRANES — Write for Literature — ELECTRIC HOISTS

BOX CRANE & HOIST CORP.

*One of the Pioneer Crane Builders*

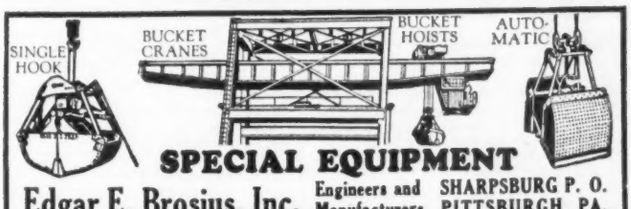
Janney and E. Ontario Sts. Philadelphia, Penna.

For Your Yard Work

P&H CORDUROY CRANES

Equipped with hook bucket, clamshell or magnet, they can easily handle any kind of loose materials. Easily maneuvered on their Corduroy traction.—no tracks required.

HARNISCHFEGER CORPORATION
Successor to PAWLING & HARNISCHFEGER CO.
3811 National Ave., Milwaukee, Wis.




SPECIAL EQUIPMENT

Edgar E. Brosius, Inc. Engineers and Manufacturers SHARPSBURG P. O. PITTSBURGH, PA.

BEDFORD CRANES

BEDFORD CRANES SERVICE

Made in all capacities—Overhead or Gantry—to suit individual requirements. Floor, cage or remote control.
Bedford Steel Stiffleg or Guy Derricks.

Bedford Foundry & Machine Co.
BEDFORD, IND.

**ROLLING MILLS (Consulting Engineers)**
Morgan Construction Co., Worcester, Mass.
Treadwell Engineering Co., Easton, Pa.

**ROLLING MILLS (Contracting Engineers)**
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

**ROLLS (Lathe Turning)**
Aetna-Standard Engineering Co., Youngstown, Ohio.

**ROLLS (Sand and Chilled)**
Lewis Foundry & Machine Co., Pittsburgh, Pa.

**ROLLS (Steel)**
Aetna-Standard Engineering Co., The, Youngstown, O.
American Adamite Co., The, 12th & Etna Sts., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Hyde Park Foundry & Machine Co., Hyde Park, Pa.
Lewis Foundry & Machine Co., Pittsburgh, Pa.
Mackintosh-Hemphill Co., 12th & Etna Sts., Pittsburgh, Pa.
Mesta Machine Co., Homestead, Pa.
Midvale Co., The., Nicetown, Philadelphia, Pa.
National Roll & Foundry Co., Avonmore, Pa.
Pittsburgh Rolls Corp., 41st St. and A. V. Ry., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bk. Bldg., Pittsburgh.
Wheeling Mold & Foundry Co., Wheeling, W. Va.

**ROLLS (Wood)**
Dart, E. M., Mfg. Co., Providence, R. I.

**ROOFING AND SIDING (Corrugated and Plain)**
American Rolling Mill Co., Middletown, Ohio.
Blaw-Knox Co., 602 Farmers Bank Bldg., Pittsburgh, Pa.
Central Alloy Steel Corp., Massillon, Ohio.
Empire Steel Corp., Mansfield, Ohio.
Granite City Steel Co., Granite City, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Newport Rolling Mill Co., Newport, Ky.
Republic Iron & Steel Co., Youngstown, O.
Robertson, H. H., Co., 1st National Bank Bldg., Pittsburgh, Pa.
Superior Sheet Steel Co., Canton, Ohio.
Trumbull Steel Co., The, Warren, Ohio.
Weirton Steel Co., Weirton, W. Va.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

**ROOFING TILE (Cement)**
American Cement Tile Mfg. Co., Oliver Bldg., Pittsburgh, Pa.

**ROOFS (Open Hearth & Heating Furnaces)**
Detrick, M. H., Co., 140 S. Dearborn St., Chicago.

**ROPE SOCKETS (Cast Steel)**
Chicago Steel Foundry Co. Kedzie Ave. at 37th St., Chicago, Ill.

**RUST PREVENTATIVE**
American Chemical Paint Co., Ambler, Pa.

**RUST REMOVING COMPOUND**
American Chemical Paint Co., Ambler, Pa.

**SAFE ENDS (Boiler Tube)**
National Tube Co., Frick Bldg., Pittsburgh, Pa.

**SAFETY DEVICES (Electric)**
Electric Controller & Mfg Co., 2698 E. 79th St., Cleveland, O.

**SAND (Molding)**
Portage Silica Co., The, 602 Stambaugh Bldg., Youngstown, O.
Rogers Brown & Crocker Bros., Inc., 21 E. 40th St., New York.

**SAND (Sandblast)**
Portage Silica Co., The, 602 Stambaugh Bldg., Youngstown, O.

**SAND BLAST ABRASIVE (Shot and Grit)**
Pittsburgh Crushed Steel Co., 61st & A. V. R. R., Pittsburgh, Pa.

**SANDBLAST EQUIPMENT AND ACCESSORIES**
Pangborn Corp., P. O. Box 858, Hagerstown, Md.

**SAND CONDITIONING AND PREPARING MACHINERY**
Bartlett, C. O., & Snow Co., 6213 Harvard Ave., Cleveland, O.
Beardsley & Piper Co., The, 2541 No. Keeler Ave., Chicago, Ill.
National Engineering Co., 549 W. Washington Blvd., Chicago, Ill.

**SAND CONVEYING AND HANDLING MACHINERY**
Bartlett, C. O., & Snow Co., 6213 Harvard Ave., Cleveland, O.
Beardsley & Piper Co., The, 2541 N. Keeler Ave., Chicago, Ill.
Link-Belt Co., 910 So. Michigan Ave., Chicago, Ill.
National Engineering Co., 549 W. Washington Blvd., Chicago, Ill.

**SAND SLINGERS**
Beardsley & Piper Co., 2541 N. Keeler Ave., Chicago, Ill.

**SASH (Steel)**
Lupton's, David, Sons Co., 2225 Allegheny St., Philadelphia, Pa.

**SAW SHARPENING MACHINES**
Hunter Saw & Machine Co., 5656 Butler St., Pittsburgh, Pa.

**SAWS (Hot & Cold Metal Cutting —Band, Circular-Hack)**
Simonds Saw & Steel Co., Fitchburg, Mass.

**SAWS (Metal Cutting Power)**
Hunter Saw & Machine Co., 5656 Butler St., Pittsburgh, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh.

**SCALES (Dial)**
Buffalo Scale Co., 1200 Niagara St., Buffalo, N. Y.
Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill.

**SCALES (Electric Dial)**
Standard Scale & Supply Corp., Pittsburgh, Pa.

**SCALES (Industrial, Motor Truck, Railroad Track, Rolling Mill)**
Buffalo Scale Co., 1200 Niagara St., Buffalo, N. Y.
Fairbanks Co., Broome and Lafayette Sts., New York City.
Fairbanks, Morse & Co., 900 So. Wabash Ave., Chicago, Ill.

**SCALES—AUTOMATIC DIAL (Heavy Duty, Bench, Overhead Track, Tank, Hanging, Packing, Counting, Special Purposes)**
Buffalo Scale Co., 1200 Niagara St., Buffalo, N. Y.
Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill.

**SCLEROSCOPE, HARDNESS MEASURING**
Shore Instrument & Mfg. Co., Van Wyck Ave. and Carll St., Jamaica, N. Y.

**SCRAP BALING PRESSES**
Logemann Bros., Co., 3126 Burleigh St., Milwaukee, Wis.

**SCREENS AND SIEVES**
Chicago Perforating Co., 2445 W. 24th Place, Chicago, Ill.
Erdle Perforating Co., 171 York St., Rochester, N. Y.
Harrington & King Perforating Co., 5634 Fillmore St., Chicago.
Hendrick Mfg. Co., 43 Dundaff St., Carbondale, Pa.
Mundt, Chas., & Sons, Johnston and Fairmont Aves., Jersey City, N. J.

**SCREW MACHINES (Automatic, Single and Multiple Spindle)**
National Acme Co., E. 131st St. & Coit Rd., Cleveland.

**SCREW MACHINE PRODUCTS**
Barnes, Wallace, Co., The, Bristol, Conn.
Michigan Screw Co., S. Hosmer Ave., Lansing, Mich.
National Acme Co., E. 131st & Coit Rd., Cleveland, O.
Wellman Products Co., The, 1445 E. 49th St., Cleveland, Ohio.

**SCREW STOCK**
Union Drawn Steel Co., Beaver Falls, Pa.
Wyckoff Drawn Steel Co., Pittsburgh, Pa.

**SCREWS**
Acme Machine Products Co., Muncie, Ind.
Clark Bros. Bolt Co., Milldale, Conn.
Progressive Mfg. Co., Torrington, Conn.

**SCREWS (Cap, Set and Safety)**
Allen Mfg. Co., Hartford, Conn.
Clark Bros. Bolt Co., Milldale, Conn.
Rhode Island Tool Co., Providence, R. I.

**SCREWS (Cold Headed)**
Acme Machine Products Co., Muncie, Ind.

**SCREWS (Lag)**
Kirk-Latty Co., 1917 W. 85th St., Cleveland, O.
Lamson & Sessions Co., The, 2188 Scranton Rd., Cleveland, O.

**SEAMLESS STEEL TUBING—See TUBES (Cold Drawn Seamless Steel)**

**SEPARATORS (Magnetic)**
Electric Controller & Mfg. Co., 2698 E. 79th St., Cleveland, O.
Ohio Electric & Controller Co., 5900 Maurice Ave., Cleveland, O.

**SHAFT AND PIPE STRAIGHTENERS (Hydraulic)**
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

**SHAFT HANGERS**
Hyatt Roller Bearing Co., Newark, N. J.

**SHAFTING**
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Keystone Drawn Steel Co., Spring City, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Union Drawn Steel Co., Beaver Falls, Pa.
Vanadium Corp. of America, 120 Broadway, New York City.
Wyckoff Drawn Steel Co., Pittsburgh, Pa.

**SHAPERS—See PLANERS AND SHAPERS**

**SHAPERS (Heavy Duty Draw-Cut)**
Morton Mfg. Co., Muskegon, Mich.

**SHAPES (Steel)—See STEEL (Structural)**

**SHEAR BLADES AND KNIVES**
Heppenstall Forge & Knife Co., 47th and Hatfield Sts., Pittsburgh, Pa.
Simonds Saw & Steel Co., Fitchburg, Mass.

**SHEARS**
Beatty Machine & Mfg. Co., Hammond, Ind.
Bliss, E. W., Co., 53rd and 2nd Ave., Brooklyn, N. Y.
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Morgan Engineering Co., Alliance, O.
National Roll & Foundry Co., Avonmore, Pa.
Niagara Machine & Tool Works, 685 Northland Ave., Buffalo, N. Y.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Toledo Machine & Tool Co., Toledo, O.
United Engineering & Foundry Co., Farmers Bk. Bldg., Pittsburgh.

**SHEET BARS**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Hausman & Wimmer Co., The, Clark Bank Bldg., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, Ohio.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

**SHEET METAL PRODUCTS—See STAMPINGS**

**SHEET METAL WORK**
Crosby Co., The, 183 Pratt St., Buffalo, N. Y.

**SHEET METAL WORKING MACHINERY**
Bliss, E. W., Co., 53rd St. and 2nd Ave., Brooklyn, N. Y.
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Niagara Machine & Tool Works, 685 Northland Ave., Buffalo, N. Y.
Peck, Stow & Wilcox Co., Southington, Conn.
Toledo Machine & Tool Co., Toledo, O.

**SHEETS (Black)**
American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Eastern Rolling Mill Co., Baltimore, Md.
Empire Steel Corp., Mansfield, Ohio.
Granite City Steel Co., The, Granite City, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Morris, Wheeler & Co., 30th & Locust Sts., Philadelphia, Pa.
Newton Steel Co., Youngstown, O.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Sharon Steel Hoop Co., Sharon, Pa.
Sheet Steel Trade Extension Committee, Terminal Tower Bldg., Cleveland, Ohio.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
Weirton Steel Co., Weirton, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

**SHEETS (Blue Annealed)**
American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Columbia Steel Corp., San Francisco, Cal.
Empire Steel Corp., Mansfield, Ohio.
Granite City Steel Co., The, Granite City, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Morris, Wheeler & Co., 30th & Locust Sts., Philadelphia, Pa.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**

# Pressed and Drawn Steel Products

LIGHT and HEAVY SECTIONS To Specifications

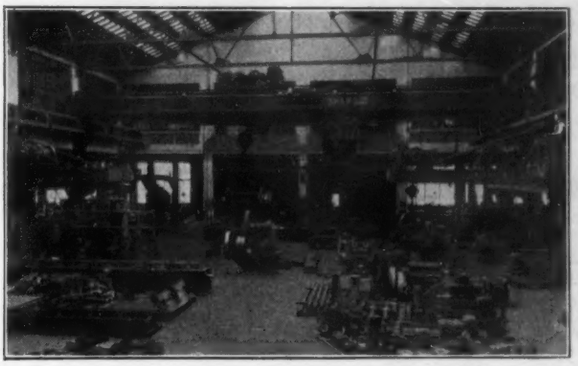
If you use pressed steel investigate our facilities for producing in quantity either light or heavy sections. This service will save you money, making available to you the experience and ability of our engineering staff and offering you the production assurance of a plant equipped with every resource at its command.

NEW RESOURCES
NEW ORGANIZATION

An expansion program just completed fits us to serve any need you may have for Pressed and Drawn Steel Parts.

*Inquiries or requests for estimates will receive immediate response.*

*The* HYDRAULIC PRESSED STEEL COMPANY
CLEVELAND, OHIO
Division of Truscon Steel Company



# Shaw Electric Traveling Cranes

**Capacities ranging from 2 tons to 300 tons**

## SHAW CRANE-PUTNAM MACHINE COMPANY

*Ownership of Manning, Maxwell & Moore, Inc.*
100 East 42nd Street, New York, N. Y.

Pittsburgh, Pa., Park Bldg. Chicago, Ill., 27 N. Jefferson St.
Detroit, Mich., General Motors Bldg. St. Louis, Mo., Railway Exchange Bldg.
San Francisco, Cal., Overcamp Machinery Co. Seattle, Wash., Louis Walber Co.
Shaw Crane Works, Muskegon, Mich.

# Ohio LIFTING MAGNETS are indestructible

All insulation is Asbestos. They have maximum lifting capacity. Outer ring has no through holes; it does not loosen, wear out or break.

The Ohio Electric & Controller Co.
Cleveland, Ohio

# TERRY STEEL ERECTOR'S DERRICKS

Terry Derrick Fittings for general construction work.

AMERICAN-TERRY-DERRICK CO.
South Kearny, N. J.

**All Bucket!** "Built to Dig and Last While Digging"
G. H. Williams Co., 611 Haybarger Lane
Erie, Pa. Branch Offices: New York, Pittsburgh, Cleveland, Chicago

# WILLIAMS FAST-DIGGING BUCKETS

# BUCKETS

for all kinds of digging and re-handling—single line (hook-on), 2 line, 4 line Clamshells

dragline BLAW-KNOX COMPANY clamshell
FARMERS BANK BLDG. PITTSBURGH, U.S.A.

# Owen Buckets

Stronger and built to last longer, Owen Buckets get "A Mouthful at Every Bite" and More Bites Per Day.

THE OWEN BUCKET CO.
6038 BREAKWATER AVE., CLEVELAND, OHIO

# LOCOMOTIVES

GASOLINE ELECTRIC

Geo. D. Whitcomb Co.
Rochelle, Ill.

# *Strength!*

## Roeper Type "R" Electric Hoist

A hoist of small capacity, rugged, durable and of few parts. Strength is gained by reduction of number of working parts. Light in weight but strong and powerful. We also manufacture ELECTRIC and HAND POWER TRAVELING CRANES.

ROEPER CRANE & HOIST WORKS, Inc.
1729 North Tenth St. READING, PA.

**SHEETS (Blue Annealed)—Cont.**

Newton Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Sharon Steel Hoop Co., Sharon, Pa.
Sheet Steel Trade Extension Committee, Terminal Tower Bldg., Cleveland, Ohio.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

**SHEETS (Brass, Bronze, Copper and Nickel Silver)**

American Brass Co., 25 Broadway, New York City.
Sheet Steel Trade Extension Committee, Terminal Tower Bldg., Cleveland, Ohio.

**SHEETS (Deep Drawing and Stamping)**

American Rolling Mill & Co., Middletown, Ohio.
American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Central Alloy Steel Corp., Massillon, O.
Eastern Rolling Mill Co., Baltimore, Md.
Empire Steel Corp., Mansfield, Ohio.
Granite City Steel Co., The, Granite City, Ill.
Newton Steel Co., Youngstown, O.
Republic Iron & Steel Co., Youngstown, O.
Sharon Steel Hoop Co., Sharon, Pa.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

**SHEETS (Electrical)**

American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa
Empire Steel Corp., Mansfield, Ohio.
Sheet Steel Trade Extension Committee, Terminal Tower Bldg., Cleveland, Ohio.

**SHEETS (Galvanized)**

American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Granite City Steel Co., The. Granite City, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago. Ill.
Sheet Steel Trade Extension Committee, Terminal Tower Bldg., Cleveland, Ohio.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
Weirton Steel Co., Weirton, W. Va.,
Youngstown Sheet & Tube Co. Youngstown, O.

**SHEETS (Lead Coated)**

Sheet Steel Trade Extension Committee, Terminal Tower Bldg., Cleveland, Ohio.

**SHEETS (Perforated)**

Erdle Perforating Co., 171 York St., Rochester, N. Y.

**SHEETS (Roofing)—See ROOFING AND SIDING (Corrugated and Plain).**

**SHEETS (Tin)—See TIN PLATE**

**SHEETS (Tin Mill Black)**

Empire Steel Corp., Mansfield, Ohio.
Granite City Steel Co., Granite City, Ill.
Sheet Steel Trade Extension Committee, Terminal Tower Bldg., Cleveland, Ohio.
Weirton Steel Co., Weirton, W. Va.

**SHEETS—HIGH FINISH (Automobile, Metal Furniture, Enameling)**

Allegheny Steel Co., Brackenridge, Pa.
American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Central Alloy Steel Corp., Massillon, Ohio.
Eastern Rolling Mill Co., Baltimore, Md.
Empire Steel Corp., Mansfield, Ohio.
Newton Steel Co., Youngstown, Ohio.
Seneca Iron & Steel Co., Buffalo, N. Y.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

**SHELVING (Steel, Adjustable)**

Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.
Lupton's, David, Sons Co., 2225 Allegheny St., Philadelphia.

**SHIPBUILDING SHAPES**

Bethlehem Steel Co., Bethlehem, Pa.

**SHOVELS (Power)**

Marion Steam Shovel Co., Marion, Ohio.

**SIEVES—See SCREENS & SIEVES**

**SKIP HOISTS**

Bartlett, C. O., & Snow Co., 6213 Harvard Ave., Cleveland, O.

**SLABS**

Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.

**SLABS (Concrete Floor)**

American Cement Tile Mfg. Co., Oliver Bldg., Pittsburgh, Pa.

**SLOTTING MACHINES**

Nazel Engineering & Machine Works, 4041 N. 5th St., Philadelphia, Pa.

**SOAKING PITS**

Chapman-Stein Co., The, Mt. Vernon, O.
Criswell, James, Co., Keenan Bldg., Pittsburgh, Pa.

**SOAKING PIT COVERS**

Detrick, M. H., Co., 140 S. Dearborn St., Chicago, Ill.

**SPACING TABLES**

Thomas Spacing Machine Co., Fulton Bldg., Pittsburgh, Pa.

**SPECIAL MACHINERY**

Aetna-Standard Engineering Co., The, Youngstown, O.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Bethlehem Steel Co., Bethlehem, Pa.
Bradley, C. C., & Son, Inc., 432 N. Franklin St., Syracuse, N. Y.
Morgan Engineering Co., Alliance, O.
National Roll & Foundry Co., Avonmore, Pa.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.
Treadwell Engineering Co., Easton, Pa.
Wellman-Seaver-Morgan Co., 7025 Central Ave., Cleveland, O.
Wheeling Mold & Foundry Co., Wheeling, W. Va.
Whiting Corp., Harvey, Ill.

**SPEED REDUCERS**

Grant Gear Works, Second & B Sts., S. Boston, Mass.
James, D. O., Mfg. Co., 1114 W. Monroe St., Chicago, Ill.
Jones, W. A., Foundry & Machine Co., 4437 W. Roosevelt Rd., Chicago, Ill.
Philadelphia Gear Works, E. Tioga, Philadelphia, Pa.
Shepard Electric Crane & Hoist Co., 358 Schuyler Ave., Montour Falls, N. Y.

**SPEED REDUCERS (Herringbone)**

James, D. O., Mfg. Co., 1114 W. Monroe St., Chicago.

**SPEED REDUCERS (Worm and Spur)**

Philadelphia Gear Works, E. Tioga, Philadelphia, Pa.
James, D. O., Mfg. Co., 1114 W. Monroe St., Chicago.

**SPIEGELEISEN**

Leavitt, C. W., & Co., 30 Church St., New York City
Rogers Brown & Crocker Bros., Inc., 21 E. 40th St., New York.

**SPIKES**

Bethlehem Steel Co., Bethlehem, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.

**SPRING MAKING MACHINERY**

Sleeper & Hartley, Inc., Worcester, Mass.

**SPRINGS**

American Spiral Spring & Mfg. Co., Arsenal Station, Pittsburgh, Pa.
American Spring & Mfg Co., Elm St., Holly, Mich.
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Barnes, Wallace, Co., The, Bristol, Conn.
Barnes-Gibson-Raymond, Inc., 6400 Miller Ave., Detroit, Mich.
Bethlehem Steel Co., Bethlehem, Pa.
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.
Cook Spring Co., Ann Arbor, Mich.
Duer Spring & Mfg. Co., Pittsburgh, Pa.
Gibson, Wm. D., Co., 1800 Clybourn Ave., Chicago, Ill.
Hunter Pressed Steel Co., Lansdale, Pa.
Peterson Spring Co., The., 1660 Beard Ave., Detroit, Mich.
Raymond Mfg. Co., Centre St., Corry, Pa.
Washburn Wire Co., Inc., 118th & Harlem River, New York.
Young, L. A., Spring & Wire Corp., 9200 Russell St., Detroit, Mich.

**SPRUE CUTTERS**

Shuster, The F. B., Co., New Haven, Conn.

**STACKS (Steel)**

American Bridge Co., The, 71 Broadway, New York City.

**STAMPINGS**

American Spring & Mfg. Co., Elm St., Holly, Mich.
American Tube & Stamping Plant, The, (The Stanley Works), Bridgeport, Conn.
Barnes, Wallace, Co., The, Bristol, Conn.
Bay State Stamping Co., 380 Chandler St., Worcester, Mass.
Bettcher Stamping & Mfg. Co., 3104 W. 61st St., Cleveland, O.
Breese Bros. Co., The, 2347 Reading Rd., Cincinnati, O.
Central Iron & Steel Co., Harrisburg, Pa.
Crosby Co., The, 183 Pratt St., Buffalo, N. Y
G G G Metal Stamping Co., Dept. D, Warren, Pa.
Hydraulic Pressed Steel Co., (Division of Truscon Steel Co.), Youngstown, Ohio.
Joliet Wrought Washer Co., Joliet, Ill.
Lansing Stamping Co., Lansing. Mich.
Raymond Mfg. Co., Corry, Pa.
Stanley Works, The, New Britain, Conn.
Transue & Williams Steel Forging Corp., Alliance, O.

**STAMPINGS (Aluminum, Bronze, Copper, Brass, Steel)**

Akron-Selle Co., Akron, O.

**STAMPS, STEEL AND MARKING DIES**

Schwerdtle Stamp Co., 39 Cannon St., Bridgeport, Conn.

**STARS (Tumbling Mill)**

Franklin Core Rod & Gagger Co., Franklin, Pa.

**STARTERS (Electric Motor)**

Electric Controller & Mfg. Co., 2698 E. 79th St., Cleveland, O.

**STEAMSHIP COMPANIES (Lake, Passenger and Freight)**

Cleveland & Buffalo Transit Co., E. 9th St. Pier, Cleveland, O.

**STEEL**

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Gulf States Steel Co., Birmingham, Ala.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Interstate Iron & Steel Co., 104 S. Michigan Ave., Chicago.
Kidd Drawn Steel Co., Aliquippa, Pa.
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Superior Steel Corp., Union Trust Bldg., Pittsburgh, Pa.
West Leechburg Steel Co., Farmers Bank Bldg., Pittsburgh.
Wyckoff Drawn Steel Co., Pittsburgh, Pa.

**STEEL (Alloy)**

Bethlehem Steel Co., Bethlehem, Pa.
Central Alloy Steel Corp., Massillon, O.
Colonial Steel Co., Keystone Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Firth-Sterling Steel Co., McKeesport, Pa.
Interstate Iron & Steel Co., 104 S. Michigan Ave., Chicago.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Timken Roller Bearing Co., The, Canton, O.
Vanadium Corp. of America, 120 Broadway, New York City.

**STEEL (Alloy, Cold Drawn)**

Union Drawn Steel Co., Beaver Falls, Pa.

**STEEL (Carbon)**

Bethlehem Steel Co., Bethlehem, Pa.

**STEEL (Cold Drawn)**

American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Globe Wire Co., Sharpsburg, Pa.
Keystone Drawn Steel Co., Spring City, Pa.
Kidd Drawn Steel Co., Aliquippa, Pa.
Pittsburgh Tool Steel Wire Co., Monaco, Pa.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**

# ERDLE

Our Perforated Metals are used for Fanning Mills, Threshing Machines, Pulp Machinery, Electrical Devices, Ventilation, Grills, Coal and Mining Screens and Hundreds of other uses. We supply any perforation, any size and any metal.

*Samples sent on request.*

**ERDLE PERFORATING COMPANY**

ROCHESTER, NEW YORK

**Perforated Metals**

For screens, Centrifugal Linings, FilterPressPlates and other uses. Any metal, any size, any perforation.

**CHARLES MUNDT & SONS**

55 Fairmount Ave., Jersey City, N. J.

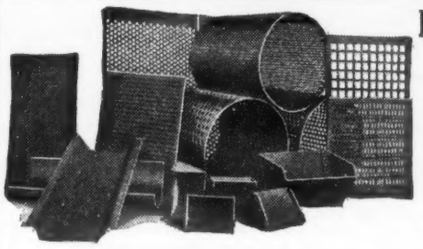
The
**HARRINGTON & KING**
**PERFORATING CO.**

5634 Fillmore St.
Chicago Ills.
New York Office
114 Liberty St.

Perforations Plain and Ornamental

PERFORATED METALS

All kinds and thicknesses of metal



**PERFORATED METAL SCREENS** *for every purpose*

Elevator Buckets (plain or perforated) Stacks and Tanks

"Mitco" Interlocked Steel Floor Grating Light and Heavy Steel Plate Construction

HENDRICK MFG. CO., Carbondale, Pa.

New York Office 30 Church St. | Pittsburgh Office 904 Union Trust Bldg. | Hazleton, Pa., Office 738 W. Diamond Ave.

**SHEET METAL STAMPING**

Our entire efforts during the past thirty-one years have been devoted exclusively to Sheet Metal Stamping.

*Send your inquiries to us*

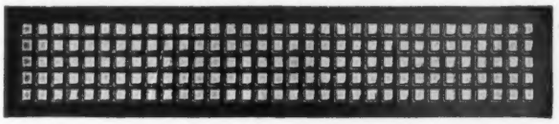
If you have not received our 1928 Catalogue, a request for same will be promptly complied with, and you will find it interesting.

**THE CROSBY COMPANY**

BUFFALO, N. Y.

*Branch Offices:*

New York Office: 30 Church St. Detroit Office: 1814 Ford Bldg.
Cleveland Office: 327 Union Mortgage Bldg.
Chicago Office: 1646 Transportation Bldg.
Philadelphia Office: 7302 Germantown Ave., Germantown, Pa.
Not affiliated with any Pressed Metal Association



Registers of every type, size, finish to cover all the requirements for Heating and Ventilating. Also Grilles for Radiator Enclosures.
Dealers Send for No. 26 Catalogue
The AUER REGISTER CO., Cleveland, Ohio

**NICETOWN PLATE WASHER CO., Inc.**

IRON AND STEEL BARS
DEFORMED BARS, THREADED RODS
PUNCHED BARS OR PLATES
AWNING RODS, HEAVY DISCS, CAST IRON WASHERS
GALVANIZED BARS AND WASHERS

JUNIATA AND CLARISSA STS.
NICETOWN, PHILADELPHIA, PA.

Perforated Metals
**SCREENS OF ALL KINDS**

Chicago Perforating Co.
2445 West 24th Place
Tel. Canal 1459 CHICAGO, ILL.

STEEL STAMPINGS RIVETING BURRS

**JOLIET WROUGHT WASHER CO.**

JOLIET, ILLINOIS

STANDARD WASHERS SPECIAL WASHERS

**STEEL (Cold Drawn) Cont.**

Ryerson, Jos. T., & Son, Inc. 16th & Rockwell Sts., Chicago.
Superior Steel Products Co., Monaca, Pa.
Union Drawn Steel Co., Beaver Falls, Pa.
Wyckoff Drawn Steel Co., Pittsburgh, Pa.

**STEEL (Crucible)**

Colonial Steel Co., Keystone Bldg., Pittsburgh, Pa.
Firth-Sterling Steel Co., McKeesport, Pa.

**STEEL (High Speed)**

Colonial Steel Co., Keystone Bldg., Pittsburgh, Pa.
Firth-Sterling Steel Co., McKeesport, Pa.
Latrobe Electric Steel Co., Latrobe, Pa.
Poldi Steel Corp. of America 151 Bank Ave., New York City.
Vanadium Alloys Steel Co., Latrobe, Pa.

**STEEL (Open Hearth)**

Gulf States Steel Co., Brown Marx Bldg., Birmingham, Ala.
Timken Roller Bearing Co., The. Canton, O.
Washburn Wire Co., Phillipsdale, R. I.

**STEEL (Open-Hearth—Cold Drawn)**

Union Drawn Steel Co., Beaver Falls, Pa.

**STEEL (Rustless)**

Firth-Sterling Steel Co., McKeesport, Pa.

**STEEL (Screw Stock)**

American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Superior Steel Products Co., Monaca, Pa.

**STEEL (Special Analysis)**

Timken Roller Bearing Co., The. Canton, Ohio.

**STEEL (Spring)**

American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

**STEEL (Stainless)**

Firth-Sterling Steel Co., McKeesport, Pa.

**STEEL (Strip, Hot and Cold Rolled)**

Acme Steel Co., 2849 Archer Ave., Chicago, Ill.
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
American Tube & Stamping Plant, The, (The Stanley Works) Bridgeport, Conn.
Central Alloy Steel Corp., Massillon, O.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Ryerson, Jos. T., & Son, Inc., 16th & Rockwell Sts., Chicago.
Stanley Works, The, New Britain, Conn.
Superior Steel Corp., Union Trust Bldg., Pittsburgh, Pa.
Weirton Steel Co., Weirton, W. Va.
West Leechburg Steel Co., Farmers Bank Bldg., Pittsburgh, Pa.

**STEEL (Structural)**

Alliance Structural Co., The, Alliance, O.
American Bridge Co., 71 Broadway, New York City
Belmont Iron Works, 22nd and Washington Ave., Philadelphia, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brown Wales Co., 498 C St., Boston, Mass. 151 Bank Ave., New York City.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Eichleay, John, Jr., Co., So. 20th and Wharton, Pittsburgh, Pa.
Illinois Steel Warehouse Co., 1819 Wabansia Ave., Chicago, Ill.
Kratzer, W. N., Co., 3212 Smallman St., Pittsburgh, Pa.
McClintic-Marshall Co., Oliver Bldg., Pittsburgh, Pa.
Ohio Structural Steel Co., The. Newton Falls, O.
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Phoenix Iron Co., The, 20 So. 15th St., Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th & Rockwell Sts., Chicago.
Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham, Ala.

**STEEL (Tool)**

Bethlehem Steel Co., Bethlehem, Pa.
Colonial Steel Co., Keystone Bldg., Pittsburgh, Pa.
Firth-Sterling Steel Co., McKeesport, Pa.
Kidd Drawn Steel Co., Aliquippa, Pa.
Latrobe Electric Steel Co., Latrobe, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Poldi Steel Corp. of America, 151 Bank St., New York City.
Ryerson, Jos. T., & Son, Inc., 16th & Rockwell Sts., Chicago.
Vanadium Alloys Steel Co., Latrobe, Pa.

**STEEL BUILDINGS—See BRIDGES, BUILDINGS AND VIADUCTS (Steel)**

**STEEL DOORS AND SHUTTERS —See DOORS & SHUTTERS (Steel, Fire & Rolling)**

**STEEL FABRICATORS—See BRIDGES, BUILDINGS AND VIADUCTS (Steel)**

**STEEL PLATE CONSTRUCTION**

Biggs Boiler Co., The, Akron, O.
Hendrick Mfg. Co., 43 Dundaff St., Carbondale, Pa.
Pennsylvania Engineering Works, New Castle, Pa.
Petroleum Iron works of Ohio, The, Sharon, Pa.
Riter-Conley Co., 1207 Oliver Bldg., Pittsburgh, Pa.
Steel Plate Products Co., Pottstown, Pa.

**STEEL PLATES — See PLATES (Iron and Steel)**

**STEEL STAMPINGS—See STAMPINGS**

**STELLITE**

Haynes Stellite Co., 30 E. 42nd St., New York City.

**STEP HANGERS**

Transue & Williams Steel Forging Corp., Alliance, O.

**STEPS (Safety Stair, Car and Ladder)**

Hendrick Mfg. Co., 43 Dundaff St., Carbondale, Pa.

**STOKERS**

Babcock & Wilcox Co., The, 85 Liberty St., New York City.
Combustion Engineering Corp., 200 Madison Ave., New York City.

**STOOLS AND FACTORY EQUIPMENT (Steel)**

Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

**STRAIGHTENING MACHINERY**

Shuster, The F. B., Co., New Haven, Conn.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.

**STRIP MILLS (Hot or Cold)**

Morgan Construction Co., Worcester, Mass.
Treadwell Engineering Co., Easton, Pa.

**STRUCTURAL IRON AND STEEL WORK — See STEEL (Structural)**

**SULPHURIC ACID**

Cleveland-Cliffs Iron Co., Union Trust Bldg., Cleveland, O.

**SWITCH STANDS**

Bethlehem Steel Co., Bethlehem, Pa.

**SWITCHES (Electric)**

Electric Controller & Mfg. Co., The, 2698 E. 79th St., Cleveland.
Shepard Electric Crane & Hoist Co., 358 Schuyler Ave., Montour Falls, N. Y.

**TANKS (Storage, Pressure Riveted, Welded)**

Air Tight Steel Tank Co., Mansion and Gloster Sts., Pittsburgh, Pa.
Biggs Boiler Co., The, Akron, O.
Hammond Iron Works, Warren, Pa.
Petroleum Iron Works of Ohio, The, Sharon, Pa.
Riter-Conley Co., 1207 Oliver Bldg., Pittsburgh, Pa.
Scaife, Wm. B., & Sons Co., Oakmont, Pa.
Steel Plate Products Co., Pottstown, Pa.

**TANKS—WOOD (For All Purposes)**

Hauser Stander Tank Co., Cincinnati, O.
Woolford, G., Wood Tank Mfg. Co., Darby, Pa.

**TANKS—WOOD OR STEEL (Rubber or Lead Lined)**

Hauser Stander Tank Co., Cincinnati, O.
Dietzel Lead Burning Co., Keystone Bldg., Pittsburgh, Pa.
Lovsey, Charles H., Co., 704 Park Bldg., Pittsburgh, Pa.

**TAPS (Collapsible)**

National Acme Co., E. 131st St. & Coit Rd., Cleveland, O.

**TAPS AND DIES**

Landis Machine Co., Waynesboro, Pa.

**TERNE PLATE—See TIN PLATE**

**TESTING MACHINES**

Riehle Bros. Testing Machine Co., 1224 N. 9th St., Philadelphia, Pa.

**THREAD CUTTING TOOLS**

Landis Machine Co., Waynesboro, Pa.

**TIE PLATES**

Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.

**TIES (Creosoted)**

Century Wood Preserving Co., 1653 Century Bldg., Pittsburgh, Pa.

**TILE (Cement Roofing)**

American Cement Tile Mfg. Co., Oliver Bldg., Pittsburgh, Pa.

**TIN PLATE**

American Sheet & Tin Plate Co., Frick Bldg., Pitsburgh, Pa.,
Bethlehem Steel Co., Bethlehem, Pa.
Granite City Steel Co., The, Granite City, Ill.
Weirton Steel Co., Weirton, W. Va.
Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, O.

**TIN PLATE EQUIPMENT**

Aetna-Standard Engineering Co., The, Youngstown, O.

**TITANIUM**

Titanium Alloy Mfg. Co., Niagara Falls, N. Y.

**TOOL BITS (High Speed)**

Firth-Sterling Steel Co., McKeesport, Pa.

**TOOL BITS (Stellite)**

Haynes-Stellite Co., 30 E. 42nd St., New York City

**TOOLS (Pneumatic)**

Cleveland Pneumatic Tool Co., 3734 E. 78th St., Cleveland, O.
Ingersoll-Rand Co., 11 Broadway, New York City.

**TORCHES AND BURNERS Acetylene, Blow, Oxy-Acetylene)**

Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**TOWERS (Transmission)**

American Bridge Co., 71 Broadway, New York City.
Blaw-Knox Co., 602 Farmers Bank Bldg., Pittsburgh, Pa.
Pacific Coast Steel Co., Rialto Bldg., San Francisco.

**TRAMRAILS**

Cleveland Electric Tramrail, Division of the Cleveland Crane and Engineering Co., Wickliffe, O.
Harnischfeger Corp., 3811 National Ave., Milwaukee, Wis.

**TREADS (Safety Stair and Ladder) —see GRATING (Non-Slipping)**

**TROLLEYS**

Hanna Engineering Works, 1766 Elston Ave., Chicago, Ill.
Roeper Crane & Hoist Works, 1729 No. 10th St., Reading, Pa.
Shepard Electric Crane & Hoist Co., 358 Schuyler Ave., Montour Falls, N. Y.

**TRUCKS (Welding)**

Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**TRUCKS AND TRACTORS (Electric Industrial)**

Atlas Car & Mfg. Co., 1140 Ivanhoe Rd., Cleveland, O.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**

# SHARON STEEL HOOP COMPANY

GENERAL OFFICE

SHARON PENNSYLVANIA

WORKS

SHARON, PA. YOUNGSTOWN, O. LOWELLVILLE, O.

## DEEP DRAWING
# SHARON
# SHEETS
## EXTRA DEEP DRAWING

DISTRICT SALES OFFICES

CHICAGO
CINCINNAT
CLEVELAND
DETROIT
NEW YORK
PHILADELPHIA
SAN FRANCISCO
SHARON
ST. LOUIS

CANADIAN REPRESENTATIVE—
HUGH RUSSEL & SONS, LTD. MONTREAL TORONTO

Contributing SHEET STEEL TRADE EXTENSION COMMITTEE Member

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*also Japanning and Black Sheets*
Seneca Iron & Steel Co., Buffalo, N.Y.

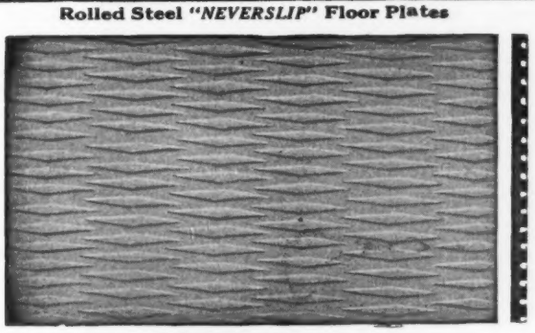
*—for*
Automobile Bodies, Cowls, Hoods, Doors, Radiators, Aprons — Metal Furniture and Stampings

ALAN WOOD IRON & STEEL CO. ESTABLISHED 1826 "A.W." TRADE MARK PHILADELPHIA

BLUE ANNEALED SHEETS
"Swede" Pig Iron
Billets Blooms Slabs
Sheared Plates
"A.W." Rolled Steel Floor Plates
ALAN WOOD IRON and STEEL CO.
Philadelphia, Pa.
San Francisco-Dallas-Seattle-New York-Boston-Los Angeles

## PACIFIC COAST STEEL COMPANY
MANUFACTURERS OF
OPEN HEARTH STEEL
STRUCTURAL SHAPES MERCHANT REINFORCING BARS
TRANSMISSION TOWERS AND STRUCTURES
Gen'l Office: Hunter-Dulin Bldg., San Francisco
Plants: San Francisco, Portland, Seattle

Rolled Steel *"NEVERSLIP"* Floor Plates



RAISED DIAMOND
Diamond and Ribbed Pattern
AMERICAN PRESSED STEEL CO.
PHILADELPHIA, PA.
The original diamond pattern floor plate.

Floor Plates

Reg. U. S. Pat. Office

CENTRAL IRON & STEEL Co.
HARRISBURG, PENN.

Underwriters' Laboratories Inspected, S. A. 443

Branch offices in all principal cities

**TUBE MILL MACHINERY**
Aetna-Standard Engineering Co., The, Youngstown, O.
Mackintosh-Hemphill Co., 12th & Etna Sts., Pittsburgh, Pa.
Treadwell Engineering Co., Easton, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh.

**TUBES**
Michigan Steel Tube Products Co., Holbrook and Buffalo Sts., Detroit, Mich.
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Paper & Textile Machinery Co., Sandusky, Ohio.
Pittsburgh Steel Products Co., Union Trust Bldg., Pittsburgh.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Timken Roller Bearing Co., The, Canton, O.
Tyler Tube & Pipe Co., The, Washington, Pa.

**TUBES (Boiler)**
Babcock & Wilcox Tube Co., Beaver Falls, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Pittsburgh Steel Products Co., Union Trust Bldg., Pittsburgh.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tyler Tube & Pipe Co., The, Washington, Pa.
Williams & Co., Inc., 901-37 Penna Ave., Pittsburgh.

**TUBES (Charcoal Iron Boiler)**
Bethlehem Steel Co., Bethlehem, Pa.
Tyler Tube & Pipe Co., The, Washington, Pa.

**TUBES (Cold Drawn Seamless Steel)**
Babcock & Wilcox Tube Co., Beaver Falls, Pa.
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Pittsburgh Steel Products Co., Union Trust Bldg., Pittsburgh.
Summerill Tubing Co., Bridgeport, Pa.
Timken Roller Bearing Co., The, Canton, O.
Williams & Co., Inc., 901-37 Penna Ave., Pittsburgh.

**TUBES (Lap-Welded Boiler)**
Bethlehem Steel Co., Bethlehem, Pa.
Tyler Tube & Pipe Co., The, Washington, Pa.

**TUBES (Non-Ferrous)**
Paper & Textile Machinery Co., Sandusky, Ohio.

**TUBES (Welded Steel)**
Michigan Steel Tube Products Co., Holbrook and Buffalo Sts., Detroit, Mich.

**TUBING (Seamless Steel & Lap Welded)**
Williams & Co., Inc., 901-37 Penna Ave., Pittsburgh.

**TURBINES (Steam)**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
General Electric Co., Schenectady, N. Y.

**TURBO BLOWERS—See BLOWERS**

**TURNBUCKLES**
Merrill Brothers, Maspeth, N. Y.

**TURNTABLES**
American Bridge Co., 71 Broadway, New York City.

**TUYERES**
Climax Fire Brick Co., Climax, Pa.

**TWIST DRILLS—See DRILLS**

**UNIONS (Pipe)**
Dart, E. M., Mfg. Co., Providence, R. I.

**VALVES**
Crane Co., 836 S. Michigan Blvd., Chicago, Ill.
Jenkins Brothers, 80 White St., New York City.

**VALVES (Back Pressure)**
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**VALVES (Gas and Air Reversing)**
Blaw-Knox Co., 602 Farmers Bank Bldg., Pittsburgh, Pa.
Duff Patents Co., Inc., 321 Union Trust Bldg., Pittsburgh, Pa.
Morgan Construction Co., Worcester, Mass.

**VALVES (Gate, Brass, Iron, Steel)**
Crane Co., 836 S. Michigan Blvd., Chicago, Ill.

**VALVES (Hydraulic)**
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

**VALVES (Pneumatic)**
Cleveland Pneumatic Tool Co., 3734 E. 78th St., Cleveland, O.

**VALVES AND FITTINGS**
Crane Co., 836 S. Michigan Blvd., Chicago, Ill.
Pittsburgh Piping & Equipment Co., 43rd St. & A. V. R. R., Pittsburgh, Pa.

**VANADIUM**
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Vanadium Corp. of America, 120 Broadway, New York City.

**VIADUCTS (Steel)—See BRIDGES BUILDINGS, VIADUCTS STACKS (Steel)**

**WALKAWAYS (Open Steel)—see FLOORING-STEEL (Ventilating, Nonslipping, Fireproof)**

**WALLS (Sectional Air Cooled)**
Detrick, M. H., Co., 140 S. Dearborn St., Chicago, Ill.

**WAREHOUSES (Iron and Steel)**
Bliss & Laughlin, Inc., Harvey, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Ryerson, Jos. T., & Son, Inc., 16th & Rockwell Sts., Chicago.
Union Drawn Steel Co., Beaver Falls, Pa.

**WASHERS (Iron and Steel)**
Bethlehem Steel Co., Bethlehem, Pa.
Joliet Wrought Washer Co., Joliet, Ill.
Nicetown Plate Washer Co., Inc., Juaniata & Clarissa Sts., Nicetown, Philadelphia, Pa.

**WASHING MACHINES & SYSTEMS (Metal)**
Maehler, Paul, Co., The, 2210 W. Lake St., Chicago Ill.

**WASHING MATERIAL (Rags)**
Ford, The J. B., Co., Wyandotte, Mich.

**WATER COOLED EQUIPMENT (For Open Hearth Furnaces)**
Blaw-Knox Co., 602 Farmers Bank Bldg., Pittsburgh, Pa.

**WATER FILTRATION & SOFTENING**
Scaife, Wm. B., & Sons Co., Oakmont, Pa.

**WATER SYSTEMS**
Myers, F. E. & Brother Co., The, Ashland, Ohio.

**WAX (Core, Wire, Pattern, Vent)**
United Compound Co., 228 Elk St., Buffalo, N. Y.

**WELDING (Commercial)**
Allan Mfg. & Welding Co., Inc., 726 Washington St., Buffalo, N. Y.

**WELDING (Forge & Hammer)**
Blaw-Knox Co., 602 Farmers Bank Bldg., Pittsburgh, Pa.

**WELDING AND CUTTING APPARATUS AND SUPPLIES (Electric Arc)**
Agnew Electric Welder Co., The, Milford, Mich.
Fusion Welding Corp., 103rd St. & Torrence Ave., Chicago, Ill.
General Electric Co., Schenectady, N. Y.
Lincoln Electric Co., The, Coit Rd. & Kirby Ave., Cleveland.
Williams & Co., Inc., 901-37 Penna Ave., Pittsburgh.

**WELDING AND CUTTING APPARATUS AND SUPPLIES (Oxy-Acetylene Process)**
Air Reduction Sales Co., 342 Madison Ave., New York City.
Fusion Welding Corp. 103rd St. & Torrence Ave., Chicago, Ill.
International Oxygen Co., Newark, N. J.
Milburn, Alexander, Co., The, 1416-1428 W. Baltimore, Baltimore, Md.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**WELDING AND CUTTING (Gas)**
Prest-O-Lite Co., Inc., The, 30 E. 42nd St., New York City.

**WELDING APPARATUS (Spot, Butt, Seam)**
Agnew Electric Welder Co., Inc., The, Milford, Mich.

**WELDING APPLIANCES**
Welding Appliance Co., 2111 West Lake St., Chicago, Ill.

**WELDING FLUX (Iron, Brass, Steel) See FLUX (Welding)**

**WELDING MACHINES (Portable Spot)**
Allan Mfg. & Welding Co., Inc., 726 Washington St., Buffalo, N. Y.

**WELDING MACHINES (Special)**
Agnew Electric Welder Co., Inc., The, Milford, Mich.

**WELDING RODS (Tobin Bronze and Special Alloys)**
American Brass Co., 25 Broadway, New York City.

**WELDING RODS AND WIRE**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Fusion Welding Co., 103rd St. & Torrence Ave., Chicago, Ill.
Lincoln Electric Co., The, Coit Rd. & Kirby Ave., Cleveland, O.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.
Roebling's, John A., Sons Co., Trenton, N. J.
Washburn Wire Co., Phillipsdale, R. I.
Williams & Co., Inc., 907-37 Penna Ave., Pittsburgh.

**WHEELS (Car and Locomotive)**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.

**WINCHES**
Sprague Electric Hoist Division of the Shepard Electric Crane & Hoist Co., 30 Church St., New York City.

**WINDOWS—FIRE PROOF (Hollow Metal)**
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Moeschl-Edwards Const. Co., The, 120 W. 9th St., Covington, Ky.

**WIRE (Annealed, Bright, Galvanized)**
Bethlehem Steel Co., Bethlehem, Pa.
Pittsburgh Steel Co., P. O. Box 72, Pittsburgh, Pa.

**WIRE (Fence)**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Pittsburgh Steel Co., P. O. Box 72, Pittsburgh, Pa.
Young, L. A., Spring & Wire Corp., 9200 Russell St., Detroit, Mich.

**WIRE (Music)**
Washburn Wire Co., Inc., 118th & Harlem River, New York City.

**WIRE (Round, Flat, Square and Special Shapes)**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Interstate Iron & Steel Co., 104 S. Michigan Ave., Chicago, Ill.
Roebling's, John A., Sons Co., Trenton, N. J.
Washburn Wire Co., Inc., 118th & Harlem River, New York City.
Young, L. A., Spring & Wire Corp., 9200 Russell St., Detroit, Mich.

**WIRE (Threaded)**
Progressive Mfg. Co., Torrington, Conn.

**WIRE (Welding)—See WELDING RODS**

**WIRE CLOTH**
Cleveland Wire Cloth & Mfg. Co. 3571 E. 78 St., Cleveland, O

**WIRE FORMING MACHINERY**
Nilson, A. H., Machine Co., Bridgeport, Conn.

**WIRE FORMS**
American Spring & Mfg. Co. Elm St., Holly, Mich.
Hunter Pressed Steel Co., Lansdale, Pa.
Young, L. A., Spring & Wire Corp., 9200 Russell St., Detroit, Mich.

**WIRE MILL EQUIPMENT**
Morgan Construction Co., Worcester, Mass.
Shuster, The F. B., Co., New Haven, Conn.
Sleeper & Hartley, Inc., Worcester, Mass.
Treadwell Engineering Co., Easton, Pa.
Vaughn Machinery Co., Cuyahoga Falls, O.

**WIRE NAIL MACHINERY**
Bliss, E. W., Co., 53rd St., Brooklyn, N. Y.
National Machinery Co., Tiffin, O
Sleeper & Hartley, Inc., Worcester, Mass.

**WIRE NAILS—See NAILS**

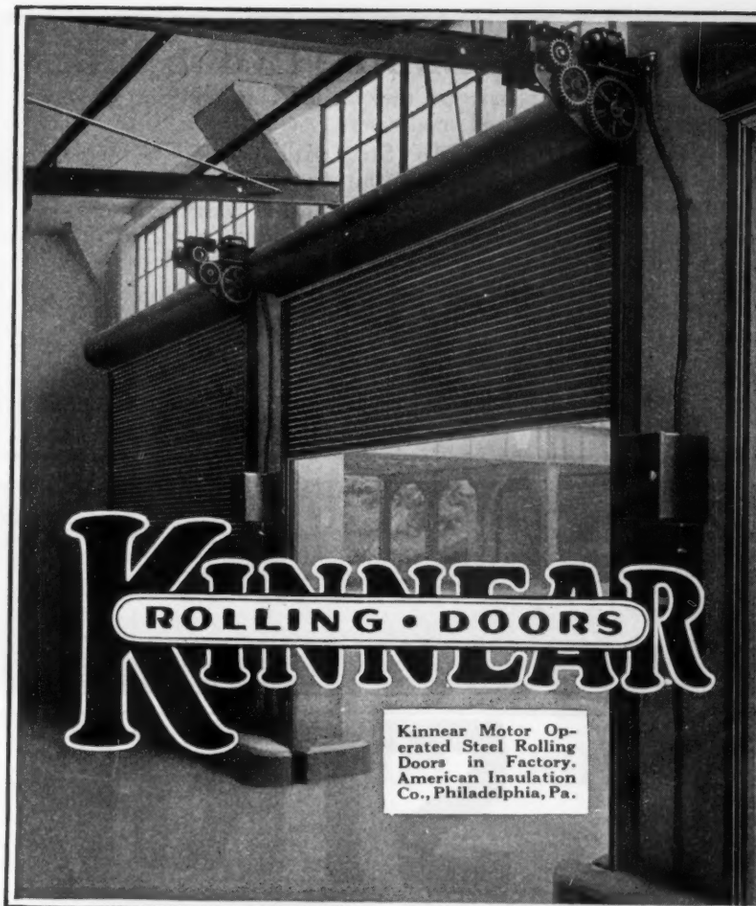
**WIRE ROPE AND FITTINGS**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill
Roebling's, John A., Sons Co., Trenton, N. J.

**WIRE ROPE SLINGS**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Roebling's, John A., Sons Co., Trenton, N. J.

**WIRE STRAIGHTENERS AND CUTTING MACHINES**
Shuster, The F. B., Co., New Haven, Conn.

**ZIRCONIUM METAL AND ALLOYS**
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**




Kinnear Motor Operated Steel Rolling Doors in Factory. American Insulation Co., Philadelphia, Pa.

## EFFICIENT SERVICE

KINNEAR ROLLING DOORS are right mechanically. Skill in design and care in construction have produced rolling doors for unfailing service in every situation. They are easily and quickly operated by hand, mechanically, or by motor.

For durability, perfect action and economy of space, leading architects specify Kinnear Steel Rolling Doors.

Offices and agencies in principal cities where our own expert men will do erection, thus insuring perfect installations.

*Our Engineering Department is at your service for consultation on special problems of installation.*

*Write for illustrated book B-10.*

THE
KINNEAR MANUFACTURING COMPANY

818-868 Field Ave. Columbus, Ohio

## QUALITY PRODUCTS

ASSURED THROUGH CONTROL OF EVERY PROCESS IN THEIR MANUFACTURE—FROM IRON ORE TO THE FINISHED COMMODITY.

**SHEETS**
BLUE ANNEALED—BLACK—GALVANIZED

**STRIP STEEL**
HOT & COLD ROLLED

**STRIP STEEL SHEETS**
WIDE WIDTHS—AUTO BODY STOCK

**TIN PLATE**
TIN MILL BLACK PLATE

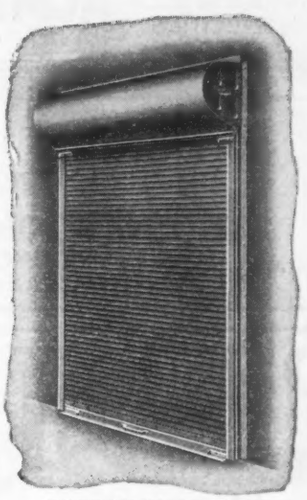
**TERNE PLATE**
COPPER BEARING, OPEN HEARTH 8 lb. to 40 lb. COATED
TERNE ROLL ROOFING

## Weirton Steel Co.

GENERAL WEIRTON, W. Va. OFFICES

DISTRICT SALES OFFICES:
New York — Philadelphia — Chicago — Detroit — Boston — St. Louis
Rochester—Cleveland—Chattanooga—New Orleans—Denver
Baltimore — San Francisco — Seattle — Tacoma
Los Angeles—Portland—Vancouver.

## DOORS } ROLLING STEEL



"MECCO" Rolling Steel Door

Specifications Furnished

Fire Proof

No Repairs

Convenient

Manual—
Chain—
Crank—
Motor
Operation

We also manufacture every type of Hollow Metal Windows, Tin Clad and Kalamein Doors.

**THE MOESCHL - EDWARDS CORRUGATING COMPANY, Inc.**

P. O. Box 564 CINCINNATI, OHIO Dept. I

QUICKSHIPPERS

# HOT and COLD ROLLED STRIP STEEL

We point with special emphasis to the facilities provided at West Leechburg for serving both large and small users.

For Tonnage Production — Our 20-16″ Strip Mill — one of the largest and most complete Mills — Assuring Prompt Shipment and Reliable Service.

For prompt delivery of small quantities we maintain continuous operation of merchant mills, flexible in range of sizes and adapted to quick roll changes.

## WEST LEECHBURG STEEL COMPANY

*General Offices:*
**Farmers Bank Bldg., Pittsburgh, Pa.**

SALES OFFICES
New York—50 Church St. Chicago—957 Peoples Gas Bldg. Detroit—5-255 General Motors Bldg.
New England—27 Ardmore Road West Hartford, Conn Toledo—906 Ohio Bldg. Cincinnati—2107 Union Central Bldg.

## VANADIUM-ALLOYS STEEL COMPANY

LATROBE, PENNSYLVANIA

MANUFACTURERS OF
"Red Cut Superior"
THE NATIONALLY KNOWN
HIGH SPEED STEEL

MANUFACTURERS OF
VASCO
QUALITY
TOOL STEELS

BRANCH OFFICES AND WAREHOUSES IN ALL PRINCIPAL MANUFACTURING CENTERS

HOT AND COLD ROLLED

# ACME STRIP

¼ TO 20 INCHES WIDE
ELECTRO GALVANIZED UP TO 12 INCHES WIDE

BRANCHES IN ALL PRINCIPAL CITIES

**ACME STEEL COMPANY**

GENERAL OFFICES CHICAGO

AUTOMOBILE METAL FURNITURE
FULL PICKLED SINGLE PICKLED
STEEL SHEETS

## THE NEWTON STEEL COMPANY

CHICAGO CLEVELAND YOUNGSTOWN, OHIO DETROIT NEW YORK
NEWTON FALLS, OHIO

# STRIP STEEL

Hot and Cold Rolled

## Superior Steel Corporation

Union Trust Bldg. Pittsburgh, Pa.

SALES OFFICES
*Detroit, Mich.:* General Motors Bldg.
*Chicago, Ill.:* Steel Sales Corp., Jefferson and Adams Sts.
*Buffalo, N. Y.:* Brace-Mueller-Huntley, Inc., Marine Trust Bldg.
*Syracuse, N. Y.:* Brace-Mueller-Huntley, Inc., Keith Building
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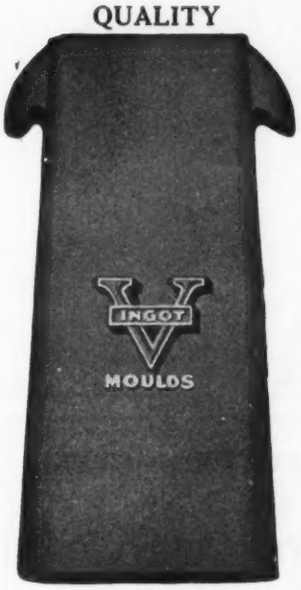


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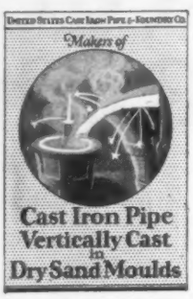


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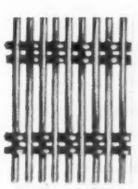

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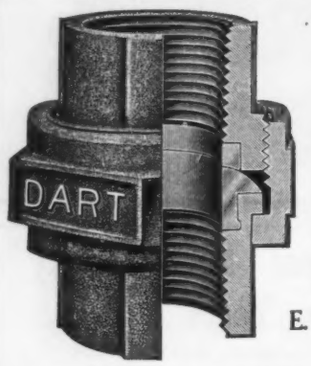


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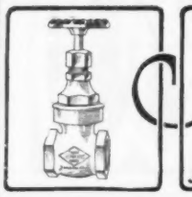

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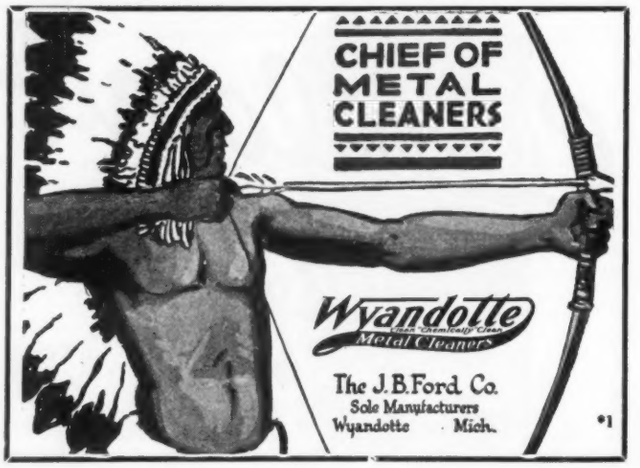

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CLIMAX, PA.

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By Stephen L. Goodale, Ph. B., M. E., M. A.
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Important events in the development of iron and steel since prehistoric times have been compiled by Stephen L. Goodale, professor of metallurgy, University of Pittsburgh, Pa., edited by J. Ramsey Speer, chairman of the board of the Pittsburgh Iron & Steel Foundries Co. These developments are recorded in chronological order and are indexed in such a way that reference to any subject is readily available.

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*505 Furnace Patch (Plastic)*

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**DESIGNING ENGINEER, EXPERIENCED** on Electric Cranes and Hoists. Good opportunity for first class man. Chisholm & Moore Hoist Corporation, Cleveland, Ohio.

**WANTED**

Experienced salesman on liberal commission basis, to sell complete line of popular Steels, such as Cold Rolled Shafting and Screw Stock, Cold Rolled Strip, Drill Rods, Carbon, Alloy and High Speed Steels and Hand and Pneumatic Tools. Applicant must be in position to furnish good references and experienced in selling this class of material. Call in person on Wednesday June 27th, at 2945 W. Harrison St., Chicago, after 9 A. M.

**$3000-$30,000 MEN FIND OUR SERVICE** effective in making connections. Individual. Confidential. Personally planned by Jacob Penn. All metalworking and machinery business men know him, believe in him. Not agency, Jacob Penn, Incorporated, 9 Park Place, New York.

**ENGINEERING POSITIONS—SPECIALIZ**ing in replacement of Executives, Sales Managers, Sales Engineers, Production Engineers, Designers, Draftsmen, Tracers and Technical men for various office, plant and Field engineering positions; also Architects, Purchasing Agents, Teachers, Chemists and Employment Managers. If qualified and experienced please call or write for blank. Cleveland Engineering Agency, 904 Rose Bldg., Cleveland, Ohio.

### CLASSIFIED RATES

For all classes of advertising except Positions Wanted, the rate is:

Single Insertion — 50c per line
Three to Six Insertions — 48c per line
Six or More Insertions — 45c per line

Seven words of ordinary length make a line.

First line is bold faced type.

A box number address counts as one line.

Positions Wanted advertisements are 25 cents per line.

Those desiring to give special prominence to their advertisements may buy space by the inch and have their advertisements appear in bold face type with white space at top and bottom, at the following rates:

| Single Column 2¼″ Wide | 1 Time | 3 Times | 6 Times | 13 Times |
|---|---|---|---|---|
| 1″ | $ 5.00 | $ 4.80 | $ 4.60 | $ 4.40 |
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| 8″ (¼ pg.) | 34.00 | 32.50 | 31.25 | 30.00 |
| 10″ | 41.50 | 39.75 | 38.25 | 37.50 |
| 15″ (½ pg.) | 64.00 | 61.50 | 59.00 | 56.50 |
| 20″ (2 col. ⅔ pg.) | 78.00 | 75.00 | 71.75 | 68.50 |
| 30″ (1 pg.) | 120.00 | 116.00 | 112.00 | 108.00 |

Count 10 lines to the inch for actual type matter and allow accordingly when white space is desired.

Advertising copy should reach us Friday prior to date of issue. IRON TRADE REVIEW is issued weekly on Thursday.

## Help Wanted

**GENERAL MANAGER WANTED**

For small Pressed Steel Plant, employing from 30 to 50 men. New concern. Excellent opportunity for live wire. Must be thoroughly familiar with production and market end of business. Location Cleveland District. Address Box 327, IRON TRADE REVIEW, Cleveland.

**WANTED**

Superintendent for a Modern Cold Drawing Plant. Must be familiar with the drawing of alloy steels and must be capable of large production. Address Box 322, IRON TRADE REVIEW, Cleveland.

**SALES MANAGER WANTED**

Experienced energetic Sales Manager for well established inspection bureau, capable of handling district office as well as the developing of new fields for this service. Prefer age 38 to 48, reference required which will be treated confidential. Address Box 316, IRON TRADE REVIEW, Cleveland.

**IF YOU ARE OPEN TO OVERTURES** for new connection, and qualified for a salary between $2500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for position of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established seventeen years. Send only name and address for details. R. W. Bixby, Inc., 110 Downtown Building, Buffalo, New York.

## FOR SALE

## ELECTRIC STEEL FOUNDRY

**Located near Milwaukee, Wisconsin**

**A REAL OPPORTUNITY FOR A PROFITABLE INVESTMENT**

If you are looking for an up-to-date foundry, fully equipped and at a reasonable price—here is a real opportunity for you.

The Gerlinger foundry, located at 60th and National Avenues, West Allis, Wisconsin, is offered for immediate sale. It has approximately 75,000 square feet floor space, side trackage on two railroads and complete electrical equipment installed recently. Capacity 350 to 400 tons per month. An abundant labor supply is found in the vicinity.

*For further particulars phone or write:*

**O. E. HELD,**
**c/o Sterling Motor Truck Company,**
**Milwaukee, Wisconsin.**

# Classified Ads

## Help Wanted

**WANTED**

***PRODUCTION MANAGER!***

We are seeking a high-grade, experienced man to take entire charge of our Production. His chief qualification must be that of an Organizer.

We want a man to analyze and recommend efficient production methods for a machine tool plant of 600 employees, manufacturing a diversified line of milling machines, accessories, and special equipment. He must be capable of laying out and maintaining manufacturing schedules, locating or arranging machine shop departments, supervising the planning board, time studies, inventories, cost records, etc.

If you can qualify for this position, please include the following information in your first reply:

1. Experience (include dates, firms where employed, in what capacity, and salary)
2. General outline of methods you have used in your previous production work.
3. Age, height, weight and recent photograph if possible.
4. References (previous employers rather than personal friends)
5. Salary expected.
6. Indicate when you can come to Milwaukee for a personal interview.

This is not an opening for one of limited experience. The man we select will be a young and energetic executive who is trained and capable to assume the entire responsibility for getting maximum production at the lowest possible cost.

**KEARNEY & TRECKER Corporation**

***Manufacturers of Milwaukee Milling Machines***

**West Allis Station**

**MILWAUKEE, WISCONSIN**

## Positions Wanted

**DIRECTOR OF WELDING WITH 8 YEARS** experience in design and construction of welded equipment desires new connection. Two years experience designing dies for pressed steel work; 4 years as machine shop executive. Best references. Addrss Box 321, IRON TRADE REVIEW, Cleveland.

**POSITION WANTED AS WORKS MANAGER** or general superintendent. Have had a very extensive experience in operating foundries. Experienced in shop layout, labor saving equipment, sand control and handling. Thoroughly practical in every detail of modern foundry practice in carbon and manganese steels, both green and dry sand. Address Box 309, IRON TRADE REVIEW, Cleveland.

**FOR SALE**

**3 Ton**
**and**
**6 Ton**

**HEROULT**
**ELECTRIC**
**STEEL**
**FURNACES**

**2200 Volts**
**60 Cycles**

**Including**

MOTORS,
TRANSFORMERS,
AUTOMATIC
REGULATORS
AND OTHER
AUXILIARY
EQUIPMENT

**Inspection invited**

*Inquire for Prices*

**THE MILTON**
**MFG. CO.**
**Milton, Pa.**

## Equipment For Sale

**FOR SALE**
**CHAIN HOIST**

One Peerless 20 Ton Capacity Chain Hoist with 20 Ton Bridge Trolley, 42 gauger. Equipment as good as new. Price very reasonable. Sutton Engineering Company, Park Bldg., Pittsburgh, Pa.

**METALWORKING MACHINERY**

Before you buy or sell consult

**MOREY & COMPANY, INC.**

410 Broome St., New York, N .Y.
Canal 5360

**FOR SALE**

**6″ and 8″ Shells**

1500 tons—6″ and 8″—20″ long. Weight approximately 75 to 100 lb. each. Shells are empty, (have never been loaded). Ideal for remelting steel. Make offer delivered your consuming point.

**M. N. LANDAY CO.**
**First National Bank Bldg., Pittsburgh, Pa.**

**DISMANTLING**
BLAST FURNACES OUR SPECIALTY
15 years experience
HENRY POTTS & CO.
Bankers Trust Building Philadelphia, Pa.

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PILING
Rented—Sold—Bought
WEMLINGER, INC.
149 Broadway, New York

**RAILS AND TRACK EQUIPMENT**

Rails—all sections—New and Relaying. Also Frogs and Switches, Bridge Girders, I-Beams, Portable Track. Old and New Mine and Industrial Cars of various gauges in stock for immediate shipment.

**M. K. FRANK**

Park Row Bldg. Union Trust Bldg.
New York, N. Y. Pittsburgh, Pa.

*The first complete book on Welding*

**"FUNDAMENTALS OF WELDING"**
by James W. Owens

*Get your copy now.*

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Lakeside Ave., & West 3rd St.
Cleveland, Ohio

*Prices* $10.00 *postpaid*

# Classified Ads

## Opportunities

**FOR SALE OR LEASE**
**Metal Manufacturing Plant**

23,000 sq. ft. of floor space. Middle Western City of 25,000 population. Trackage of three transcontinental Railroads adjoin property. One block from Mississippi River. One and one-quarter blocks of land. Separate office building. Excellent labor and living conditions. Offered with or without equipment, which includes complete machine, forge, structural, sheet metal, pattern and assembly shops. Address Box 323, IRON TRADE REVIEW, Cleveland.

---

**STEEL BUILDING**
**WITH TRAVELING CRANE**
**FOR SALE AT LOW PRICE**

Length—300 ft. Width 70 ft. Height of column from ground to top crane rail 21 ft. Distance top of crane rail to bottom of truss—9 ft. Distance center to center of column 15'8". Columns 24" wide. Runway girder 15", I-beams. Mill type. Monitor roof. Including Morgan 5 ton traveling crane.

Price $12,000 f.o.b. cars St. Louis, Mo.

**JOS. GREENSPON'S SONS**
**IRON & STEEL CO.**
**St. Louis, Mo.**

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**FOR SALE**
**FOUNDRY & MACHINE SHOP**

Foundry located in Central Pennsylvania on main line Pennsylvania railroad. Capacity 10 tons gray iron daily—with fully equipped machine shop. Manufacturing standard line of machinery. An excellent opportunity. Address Box 306, IRON TRADE REVIEW, Cleveland.

---

**FOR SALE**

Foundry and machine shop with eight acres of land in Birmingham Alabama District. Railroad siding. Will trade for stock in reliable company. Address Box 325, IRON TRADE REVIEW, Cleveland.

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**OPPORTUNITY**
**TO ACQUIRE**
**ESTABLISHED FOUNDRY**

Located thirty miles from Pittsburgh on Pennsylvania Railroad—five acres of ground, with available unimproved property adjacent —Main Foundry building 76 ft. x 175 ft.—10 ton electric crane and other equipment—capacity 30 tons per day. Plant is in the vicinity of prosperous and well known manufacturing concerns. Will be priced exceptionally low for quick sale. Address "Foundry", P. O. Box 1015, Pittsburgh, Pa.

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*OUR*
*SUBSCRIBERS*

The classified section of IRON TRADE REVIEW is for your convenience—its value to you depends upon your use of this section.

If you want to buy or sell any used equipment—need a man for your plant or desire a new position—make it known to the entire metalworking field through the classified section.

See the first page of this section for complete information regarding rates and closing dates.

Don't forget that

**Buyers follow**
**Classified Advertising**

## Wanted

**DRAW BENCHES**

Information requested
on New or Used
DRAW BENCHES

Address Box 326,
IRON TRADE REVIEW, Cleveland

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**WANTED**
**PLATE SHEAR**

50" x ¾" capacity. Must have automatic hold-down. Address Box 324, IRON TRADE REVIEW, Cleveland.

---

**WANTED**
**Used Equipment For Plate Shop**

One Plate Bending Roll 30' to 36'.
One Edge Planer 30' to 36', capacity ¾" to 1".

**WYATT METAL & BOILER WORKS**
**Post Office Box 1201**
**Dallas, Texas**

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**WANTED TO BUY**
**TWO USED TESTING MACHINES**

200,000 lbs. capacity each, for tensile and compression tests. Must be complete in good working order. Advise description, age and condition. Address Box 319, IRON TRADE REVIEW, 1147 Peoples Gas Bldg., Chicago, Ill.

---

**EQUIPMENT WANTED**

The following equipment must be new or slightly used.

1 24" x 14' Geared Head Engine Lathe
1 24" Shaper.
1 18" x 9' Tool Room Lathe.
1 28" Turret Lathe. Gisholt type preferred.
1 Circular cold cutting saw to take 7" rounds.
1 Motor Driven 6 ft. Heavy Duty Radial Drill.
1 3½" Horizontal Boring, Drilling & Milling Machine.

Also Oil Burning Furnaces for Heat Treating Tools.

**Address Box 320,**
**IRON TRADE REVIEW, Cleveland.**

# Classified Ads

## Contract Work

**MACHINE WORK**

*Structural Steel Work Patterns—Castings*

We have excess capacity available and solicit your inquiries. Our broad engineering experience and modern shop facilities are both at your disposal. Send us your inquiries and blue prints for prices and prompt service.

THE WELLMAN-SEAVER-MORGAN CO
Cleveland, Ohio

## Contract Work

**GENERAL MACHINE WORK**

Special Machinery Tools, Dies, Fixtures, Rebuilding

**FEDERAL PRESS CO.**
**Elkhart, Ind.**

## Contract Work

**HOT DIP GALVANIZING**

**We have the largest hot dip job galvanizing plant and kettles in the United States. We have the most modern equipment to do first class galvanizing at lowest prices. Galvanizing Products Furnished.**

*Prime Western Zinc used exclusively. Send us your inquiries*

**JOSEPH P. CATTIE & BROTHERS**
**Gaul and Letterly Streets**
**PHILADELPHIA**

## Castings

### CONNECTICUT

**THE SESSIONS FOUNDRY CO., INC.,** Bristol. Gray iron from smallest to thirty tons. Pattern and machine shop.

### DELAWARE

**DEEMER STEEL CASTINGS CO.,** Washington Boulevard, New Castle. Small and medium size steel castings.

### ILLINOIS

**WANNER MALLEABLE CASTINGS CO.,** Quality Malleable Castings. Carefully finished. Pattern Shop. Works, Hammond, Ind.; Beloit, Wis.

### INDIANA

**MARION MACHINE, FOUNDRY & SUPPLY CO.,** Marion. Gray iron, semi-steel up to 20,000 lbs. Building specialties; pattern and machine work.

**RELIANCE FOUNDRY CO.,** Richmond. High quality gray iron and semi-steel castings, one to five tons. Let us quote you prices.

**WANNER MALLEABLE CASTINGS CO.,** Quality Malleable Castings. Carefully finished. Pattern Shop. Works, Hammond, Ind.; Beloit, Wis.

### IOWA

**DAVENPORT MACHINE & FOUNDRY CO.,** Davenport. Heavy gray iron and semi-steel to ten tons. Mfgrs. of "Davenport" Molding Machines.

### MICHIGAN

**AUTO SPECIALTIES MFG. CO.,** St. Joseph. Highest grade malleable castings, either plain or machined, and finished to blue print.

**ENTERPRISE BRASS WORKS,** Muskegon. Bronze and aluminum castings. Plumbers brass goods.

**LAKE SHORE ENGINE WORKS,** Marquette. Gray iron castings up to fifteen tons. Patternshop and machine shop.

### NEW JERSEY

**WEST BERGEN IRON FOUNDRY,** Jersey City, 21-27 Pollock Ave. Soft gray iron castings up to 5 tons each.

### NEW YORK

**BUFFALO FOUNDRY & MACHINE CO.,** Buffalo. Gray iron, semi-steel and special mixture castings, 1 to 200 tons. Pattern and machine shop.

**SHERWOOD MFG. CO.,** Buffalo, 1701 Elmwood Ave. Brass and bronze castings to your specifications. Complete machining facilities.

## Castings

### OHIO

**THE AMERICAN CRUCIBLE PRODUCTS CO.,** Lorain. Brass, bronze and aluminum castings. Machined parts. Mill brasses a specialty.

**THE COMMERCIAL STEEL CASTINGS CO.,** Marion. Acid open hearth steel castings 5 lbs. to 10 tons. Shipping facilities on five railroads.

**CRUCIBLE STEEL CASTING CO.,** Cleveland. Electric steel castings. Specialize in nickel-chrome alloys for abrasive wear and high ultimates.

**THE MACHINED STEEL CASTINGS CO.,** Alliance. Acid open hearth steel castings, 1 lb. to 100,000 lbs. each. Castings machined if desired.

**QUAKER CITY FOUNDRY, INC.,** Salem. Light and Medium weight Gray Iron or Semi-steel. Machine or hand molded, tumbled or sand blasted.

**THE WEST STEEL CASTING CO.,** Cleveland. High grade light work steel castings, 1 to 500 lbs. Quality work desired. Qual. and service guaranteed.

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**AMERICAN ENGINEERING CO.,** Philadelphia. Aramingo & Cumberland Sts. Gray iron and semi-steel from 1 to 24,000 lbs. Long and varied experience.

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**GRAY IRON FOUNDRY CO.,** Reading. Specializing on small castings of every description. Machining or hand molded, tumbled or sand blasted.

**JOHNSON BRONZE CO.,** New Castle. Brass and bronze castings, both machined and finished. From ½ lb. to 100 lbs. finished; ½ to 1000 lbs. rough.

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**MEADVILLE MALLEABLE IRON CO.,** Meadville. High grade malleable castings from refined air furnace iron. Pattern and machine shop.

**NATIONAL FOUNDRY CO.,** Erie. Steel castings of all descriptions. Patterns and machine shop in connection.

**NAZARETH FOUNDRY & MACHINE CO.,** Nazareth (Eastern Penna.) Gray iron castings, brass castings. Complete machine and pattern shops.

**NORTH WALES MACHINE CO., INC.,** North Wales. Gray iron, superior quality machine or hand molded, sand blasted, pickled or tumbled.

**READING STEEL CASTING CO.,** Reading. Electric and open hearth steel castings, 1 lb. to 20 tons.

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### WISCONSIN

**WANNER MALLEABLE CASTINGS CO.,** Quality Malleable Castings. Carefully finished. Pattern Shop. Works, Hammond, Ind.; Beloit, Wis.

## Patterns

### OHIO

**STANDARD PATTERN WORKS CO.,** Cleveland. Machine cut wood and metal gear patterns. Matchplates. Moulding machine equipment.

## Machine Products

### MISSOURI

**CRAGO GEAR AND MACHINE WORKS,** Kansas City. Spur gears from one inch to six feet. Worms, sprockets and specials. Machine work.

## Forgings

### INDIANA

**BASS FOUNDRY & MACHINE CO.,** Fort Wayne. Double refined hammered iron for draw bars and other severe usage. Hammered steel forgings.

### OHIO

**AMERICAN FORGE & MACHINE CO.,** Canton. Drop and drawn forgings. Machining and heat treating. Hot dip galvanizing.

**OHIO FORGE CO.,** Cleveland. Drop forgings and general forgings. Capacity 800 to 6,000 lbs. Weldless rings, shafting.

## Stampings

### CONNECTICUT

**THE ROOT CO.,** Bristol. Light and medium quality stampings from steel, brass or copper. Get our quotation.

### ILLINOIS

**JOLIET WROUGHT WASHER CO.,** Joliet. Standard washers and riveting burrs. Special washers. Steel stampings.

### MASSACHUSETTS

**LARSON TOOL & STAMPING CO.,** Attleboro, 501 Olive St. Medium and light stampings, all metals, complete assemblies. Single pieces or carloads.

### MICHIGAN

**LANSING STAMPING CO.,** Lansing. Heavy medium and light metal stampings. Send blue prints or samples for estimate.

# Index to Advertisements

The star (*) indicates that the advertisement appears alternate weeks, the dagger (†) once a month.


A

†Abendroth & Root Mfg. Co. —
†Acme Machine Products Co.... —
Acme Steel Co. 66
Aetna-Standard Engineering Co. 43
*Agnew Electric Welder Co.... 45
†Air Reduction Sales Co. —
Air-Tight Steel Tank Co. 72
Akron-Selle Co. 53
†Allan Mfg. & Welding Co. —
Allegheny Steel Co. 73
†Allen Mfg. Co., The. —
*Alliance Machine Co., The. 57
Alliance Structural Co. 68
Allis-Chalmers Mfg. Co. 43
Aluminum Co. of America. 49
†American Abrasive Metals So. —
†American Adamite Co. —
†American Brass Co., The. —
American Bridge Co. 68
American Car & Foundry Co.... —
American Cement Tile Co. 76
*American Chain Co., Inc. —
*American Chemical Paint Co.... —
†American Gas Association. —
†American Heat Economy Bureau, Inc. —
American Mond Nickel Co. 76
†American Pipe Bending Machine Co. —
American Pressed Steel Co. 63
*American Punch & Shear Works 45
†American Rolling Mill Co. 28
American Sheet & Tin Plate Co. 6, 7
American Spiral Spring & Mfg. Co. 71
*American Spring & Mfg. Co. —
American Steel & Wire Co. 71
American Steel Foundries. 49
†American Telephone & Telegraph Co. 27
American Terry Derrick Co. 59
*American Tube & Stamping Plant —
*American Welding & Mfg. Co., The 53
†Armstrong Cork & Insulation Co. —
*Ashland Fire Brick Co. 77
*Atlas Car & Mfg. Co. Front Cover
Atlas Steel Casting Co. 49
†Auer Register Co. 61
†Austin Co., The —

B

Babcock & Wilcox Co. 70
*Babcock & Wilcox Tube Co., The 23
†Barnes Drill Co. —
Barnes-Gibson-Raymond, Inc.... 71
†Bartlett, C. O., & Snow Co. 35
*Bay City Forge Co. 55
†Bay State Stamping Co. —
Beardsley & Piper Co., The. 47
Beatty Machine & Mfg. Co. 57
Bedford Foundry & Machine Co. 57
Belmont Iron Works 68
Best, W. N., Corp. 47
Bethlehem Steel Co. 84
Biggs Boiler Works Co., The 69
Birdsboro Steel Foundry & Machine Co. 25
Blaw-Knox Co. 59
*Bliss & Laughlin, Inc. —
Bliss, E. W., Co. 32
Box Crane & Hoist Corp. 57
Bradley, C. C., & Son, Inc. 43
Brassert, H. A., & Co. 73
†Breese Bros. Co., The. —
Brosius, Edgar E. 57
†Brown Wales Co. —
*Buffalo Bronze Die Cast Corp. 51
†Buffalo Scale Co. —
†Bullard Machine Tool Co. —

C

*Cadman, A. W., Mfg. Co. —
Cameron, A. S., Steam Pump Works —
*Canton Forge & Axle Co. —
†Carborundum Co. —
Carlyle Johnson Machine Co.... 45
*Carnegie Steel Co. —
†Carr Fastener Co., Dot Lubrication Division —
†Carroll Chain Co., The. —
†Cascade Foundry Co. —
*Case Hardening Service Co.... —
Cattie, Jos. P., & Bros. 81
†Celite Products Co. —
†Central Alloy Steel Corp. —
Central Iron & Steel Co. 63
†Century Electric Co. —
†Century Wood Preserving Co. —
Chambersburg Engineering Co. 43
†Champion Machine & Forging Co., The 55
†Chapman-Stein Co., The. —
Chicago Gear Mfg. Co. 45
Chicago Perforating Co. 61
†Chicago Steel Foundry Co. —
†Clark Bros. Bolt Co. —
Cleveland & Buffalo Transit Co., The —
Cleveland-Cliffs Iron Co. 75
Cleveland Crane & Engineering Co. 57
Cleveland Pneumatic Tool Co. 47
*Cleveland Punch & Shear Works Co. —
*Cleveland Wire Cloth & Mfg. Co. 71
Cleveland Wire Spring Co., The 71
Climax Fire Brick Co. 77
†Colonial Steel Co. —
*Columbia Steel Corp. —
†Commercial Steel Casting Co., The —
Cook Spring Co. 70
†Costello Engineering Co. —
†Crane Co. —
Crescent Refractories Co. 77
*Criswell, James, Co. 73
Crosby Co. 61
Crucible Steel Casting Co. (Cleveland, O.) 49
†Curtis & Curtis Co., The. —
Cutler-Hammer Mfg. Co. 30
†Cyclops Iron Works. —

D

Dart E. M., Mfg. Co. 72
†Detrick, M. H., Co. —
*Dietzel Lead Burning Co. —
*Donner Steel Co., Inc. —
Drop Forging Co. of New York 53
†Dry Quenching Equipment Corp. —
†Duer Spring & Mfg. Co. —
*Duff Patents Co., Inc. —

E

†Eastern Rolling Mill Co. —
Eaton, Rhodes & Co. 75
Eichleay, John, Jr., Co. 68
Electric Controller & Mfg. Co. Back Cover
*Electro Metallurgical Sales Corp. 37
Empire Steel Co. 9
*Enterprise Brass Works. —
Erdle Perforating Co. 61
*Erie Bronze Co. —
†Erie Foundry Co. —
†Eureka Fire Brick Works. —

F

†Fairbanks-Morse & Co. —
Fantus Factory Locating Service —
*Farrel-Birmingham Co., Inc. —
*Farrell-Cheek Steel Foundry Co. —
Federal Press Co. 81
†Firth-Sterling Steel Co. 3
Fitzsimmons & Cole Machinery Co. —
Flinn & Dreffein Co. 45
Ford, J. B., Co., The. 76
*Forest City-Walworth Run Foundries —
†Foundation Oven Corp. —
*Frank, M. K. 79
†Franklin Core Rod & Gagger Co. —
†Franklin Steel Works —
†Freyn Engineering Co. —
Fuller Lehigh Co. 72
†Fusion Welding Corp. —

G

†General Bronze Co. —
General Electric Co. 29
General Refractories Co. 77
†Gerson Stewart Corp., The. —
*G G G Metal Stamping Co. —
*Gits Bros. Mfg. Co. 76
*Globe Iron Co. 74
Globe Wire Co. 68
†Granite City Steel Co. —
†Grant Gear Works —
Gulf States Steel Co. 70

H

Hagan, Geo. J., Co. 47
†Hamilton Mfg. Co. —
†Hanlon-Gregory Galvanizing Co. —
†Hanna Engineering Works. —
†Hanna, M. A., Co. —
Harbison Walker Refractories Co. 77
Harnischfeger Corporation. 24, 57
Harrington & King Perforating Co. 61
†Hauser-Stander Tank Co. 21
Hausman & Wimmer Co., The 70
†Haynes-Stellite Co. —
†Hearne, William W., Inc. —
†Heisler Locomotive Works. —
Held, O. E. 78
Hendrick Mfg. Co. 61
Heppenstall Forge & Knife Co. 55
Herman Pneumatic Machine Co. 47
Hillman Coal & Coke Co. 75
*Hill Wallisch Bronze Co. —
Hills-McCanna Co. —
†Hindley Mfg. Co. —
†Hinman, D. A., & Co. —
Hisey-Wolf Machine Co. 15
†Hunter Pressed Steel Co. —
Hunter Saw & Machine Co. 47
*Hyatt Roller Bearing Co. —
†Hyde Park Foundry & Machine Co. —
*Hydraulic Pressed Steel Co. (Division of Truscon Steel Co.) 59

I

*Illinois Clay Products Co. —
Illinois Steel Co. 20
*Illinois Steel Warehouse Co. —
†Independent Pneumatic Tool Co. —
†Industrial Brown Hoist Corp. —
Industrial Plants Corp. —
†Industrial Steel Casting Co. —
Ingersoll-Rand Co. 13
†Inland Steel Co. —
International Nickel Co., The 10
*International Oxygen Co. —
*International Paint Corp. 76
†Interstate Iron & Steel Co. —
*Iowa Malleable Iron Co. 51

J

†James, D. O., Mfg. Co. —
Jenkins Bros. 72
Johnson, Carlyle, Machine Co. 45
*Joliet Wrought Washer Co. 61
†Jones, W. A., Foundry & Machine Co. —

K

†Kardong Brothers, Inc. —
Kearney & Trecker Corp. 79
Kennedy, Julian 73
†Kent-Owens Machine Co. —
Keokuk Electro Metals Co. 76
*Keystone Drawn Steel Co. 67
*Kidd Drawn Steel Co. 67
Kier Fire Brick Co. 77



Engineering Directory, Pages 72, 73 "Where-to-Buy," Page 42
Contents, Page 1677 (Editorial) Classified Advertisements, Pages 78-81

# Index to Advertisements


†Kinnear Mfg. Co. ..... 65
*Koppers Construction Co..... —
*Kratzer, W. N., Co..... —

L

Laclede-Christy Clay Products Co. ..... 77
Laclede Steel Co..... 66
Lake Erie Bolt & Nut Co..... 70
†Lake Shore Engine Works..... —
†Lakeside Steel Improvement Co., The ..... —
†Lamson & Sessions Co..... .....Inside Back Cover
†Landis Machine Co..... —
†Landis Tool Co..... —
*Lansing Stamping Co..... —
Latrobe Electric Steel Co..... 70
Laughlin, Alex, & Co..... 73
Lavino, E. J., & Co..... 77
Lewis Foundry & Machine Co. 43
*Lincoln Electric Co., The..... 39
*Linde Air Products Co..... 38
*Link-Belt Co. ..... —
Lockhart Iron & Steel Co..... —
Logemann Brothers Co..... ..... 1713 (Editorial)
*Long & Allstatter Co..... 45
†Lovsey, Charles H., Co..... 69
†Lupton's, David, Sons Co..... —

Mc

McClintic-Marshall Co..... 68
McKee, Arthur G., & Co..... 73

M

†Mackintosh-Hemphill Co..... 34
Maehler, Paul, Co. ..... 47
Marietta Hollow-Ware & Enameling Co., The ..... 51
Marion Malleable Iron Works 51
†Marion Steam Shovel Co..... —
Maynard Electric Steel Casting Co. ..... 49
†Meeker Foundry Co. ..... —
†Merrill Bros. ..... —
*Mesta Machine Co. ..... —
Metal & Thermit Corp. ..... 76
*Michigan Screw Co. ..... —
*Michigan Steel Tube Products Co. ..... —
†Midvale Co., The ..... —
*Migret, Rene ..... —
†Milburn, Alexander, Co., The —
Milton Mfg. Co..... —
†Mirkil, H. Hays ..... —
†Moeschl-Edwards Construction Co., Inc., The ..... 65
Morey & Co., Inc. ..... 79
Morgan Construction Co. ..... 72
Morgan Engineering Co. ..... 57
†Morris Wheeler & Co., Inc..... —
†Morton Mfg. Co. ..... —
Mount Vernon Bridge Co. ..... 73
Mundt, Charles, & Sons ..... 61
†Myers, F. E., & Bro. Co., The ..... —

N

Naismith, Geo. & Son ..... 72
†National Acme Co. ..... —
*National Alloy Steel Co. ..... —
National Engineering Co. ..... 47
*National Forge & Ordnance Co. ..... —
National Machinery Co. ..... 43
National Roll & Foundry Co. 43
*National Tube Co. ..... 31
†Nazel Engineering & Machine Works ..... —
*Neely Nut & Bolt Co. ..... 70
*New Departure Mfg. Co., The ..... —
Newton Die-Casting Corp. ..... 8
Newton Steel Co. ..... 66
†Niagara Machine & Tool Works ..... —
*Nicetown Plate Washer Co., Inc. ..... 61
†Nilson, A. H., Machine Co. —
†Norma-Hoffmann Bearings Corp. ..... —
†Norton Co., The ..... 19

O

Ohio Electric & Controller Co. 59
*Ohio Structural Steel Co. ..... 68
†Oliver Iron & Steel Corp..... —
Oliver Iron & Steel Corp., Morris & Bailey Division..... 66
Owen Bucket Co. ..... 59
*Oxweld Acetylene Co. ..... 33

P

Pacific Coast Steel Co. ..... 63
†Pangborn Corp. ..... —
†Paper & Textile Machinery Co. ..... —
†Parkin, Wm., & Co..... —
†Peck, Stow & Wilcox Co., The ..... —
Penn Iron & Steel Co. ..... 67
Pennsylvania Engineering Works ..... 73
Peoria Malleable Castings Co. 51
†Perin & Marshall ..... 73
†Perkins, B. F., & Son, Inc. —
*Peterson Spring Co. ..... 71
Petroleum Iron Works Co..... 69
Philadelphia Gear Works ..... 45
Philadelphia Steel & Iron Co. 55
†Phillips & McLaren Co..... —
Phoenix Bridge Co. ..... 68
Phoenix Iron Co. ..... 68
*Pickands, Mather & Co. ..... —
Pilling & Co. ..... —
Pittsburgh Coal Co. ..... 74
†Pittsburgh Crushed Steel Co. —
Pittsburgh Electric Furnace Corp. ..... 47
†Pittsburgh Electro Galvanizing Co. ..... —
Pittsburgh Piping & Equipment Co. ..... 72
*Pittsburgh Rolls Corp. ..... 43
†Pittsburgh Steel Co. ..... —
†Pittsburgh Steel Products Co. —
†Pittsburgh Tool Steel Wire Co. ..... —
†Poldi Steel Corp. of America ..... —
Portage Silica Co. ..... 47
Potts, Henry, & Co. ..... 79
*Power Piping Co. ..... 72
*Prest-O-Lite Co. ..... —
*Progressive Mfg. Co. ..... —

Q

*Queen City Forging Co., The 55
Queen's Run Refractories Co., Inc. ..... 77
Quinn, Clement K., & Co..... 74

R

Raymond Mfg. Co. ..... 71
†Reading Chain & Block Corp. —
†Reliance Steel Casting Co..... —
Republic Iron & Steel Co..... 36
Rhode Island Tool Co..... 70
†Riehle Bros. Testing Machine Co. ..... —
Riter-Conley Co. ..... 72
†Robertson, H. H., Co.....11, 12
†Rockford Bolt Co. ..... —
Rockford Drop Forge Co..... 53
Roebling's, John A., Sons Co. 71
Roeper Crane & Hoist Works, Inc. ..... 59
Rogers Brown & Crocker Bros., Inc. ..... 74
†Roots, P. H. & F. M., Co. 22
Russell, Burdsall & Ward Bolt & Nut Co. ..... 14
*Rust Engineering Co. ..... —
Ryerson, Joseph T., & Son..... 40

S

*Samuel, Frank, & Co..... —
Scaife, Wm. B. & Sons Co..... 69
*Schuylkill Forge Co. ..... —
*Schwerdtle Stamp Co. ..... —
Seneca Iron & Steel Co. ..... 63
*Sharon Foundry Co. ..... 49
Sharon Steel Hoop Co. ..... 63
Shaw-Crane-Putnam Machine Co. ..... 59
†Sheet Steel Trade Extension Committee ..... —
Shenango-Penn Mold Co. ..... 74
†Shepard Electric Crane & Hoist Co. ..... —
*Shore Instrument & Mfg. Co., The ..... —
*Shover, Barton R. ..... —
*Shuster, F. B., Co., The ..... —
Simonds Mfg. Co. ..... 45
Simonds Saw & Steel Co. ..... —
†Sivyer Steel Casting Co. ..... —
Sleeper & Hartley, Inc. ..... 47
Smith, Geo. H., Steel Casting Co. ..... 49
*Smythe, S. R., Co., Inc. ..... —
Snyder, W. P., & Co. ..... 74
Southern Manganese Steel Co. 17
†Sprague Electric Hoist Division ..... —
Stahleker Steel Co. ..... —
†Standard Scale & Supply Co. —
*Stanley Works, The ..... —
†Steel Car Forge Co. ..... —
*Steel Plate Products Co. ..... —
†Stewart Die Casting Co. ..... —
Stewart Furnace Co. ..... 74
Storms Drop Forging Co. ..... 55
*Stowe-Fuller Refractories Co. —
Strong, Carlisle & Hammond Co., The .....Inside Front Cover
Strong Steel Foundry Co. ..... 49
Sullivan Machinery Co. ..... 47
Summerill Tubing Co. ..... 72
†Sun Oil Co. ..... —
Superior Steel Corp. ..... 66
Superior Steel Products Co. .... 68
†Surface Combustion Co., The —
Sutton Engineering Co. ..... 4
Swindell, Wm., & Brothers .... 47

T

†Taylor, Chas. Sons Co. ..... —
Taylor-Wilson Mfg. Co. ..... 45
Tennessee Coal, Iron & R. R. Co. ..... 68
†Thomas Spacing Machine Co. —
*Timken Roller Bearing Co..... —
*Titanium Alloy Mfg. Co. .... —
Toledo Machine & Tool Co. .... 45
Transue & Williams Steel Forging Corp. ..... 55
Treadwell Engineering Co. .... 47
Truscon Steel Co. ..... —
Tyler Tube & Pipe Co. ..... 69

U

*Union Drawn Steel Co. ..... 5
Union Steel Casting Co. ..... 49
†United Compound Co. ..... —
*United Engineering & Foundry Co. ..... —
†U. S. Cast Iron Pipe & Fdy. Co. ..... 70
*U. S. Nickel Co. ..... 76
U. S. Refractories Corp. ..... 77

V

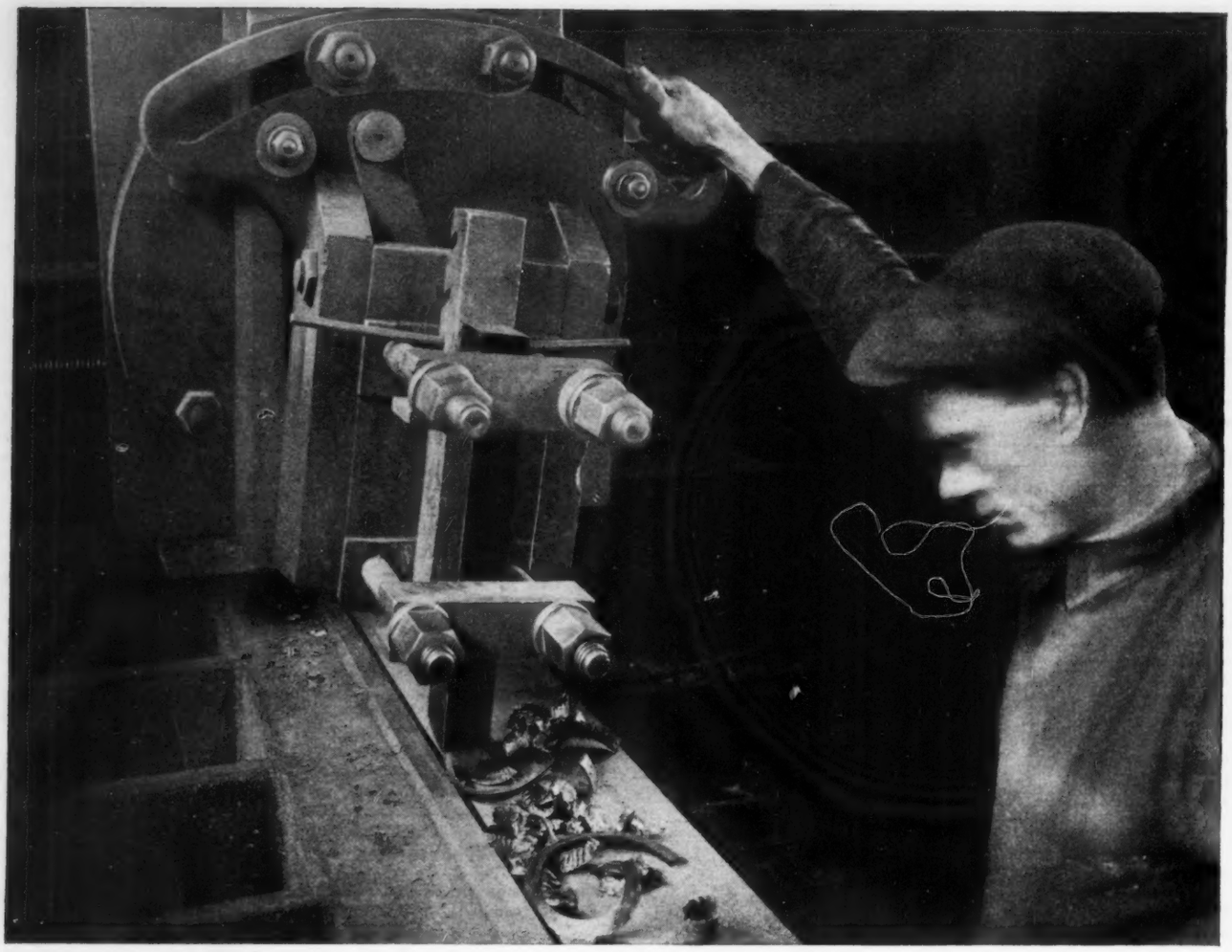
Valley Mould & Iron Corp. .... 67
Vanadium-Alloys Steel Co. ..... 66
*Vanadium Corporation of America ..... —
Vaughn Machinery Co. ..... 45
Vermilion Malleable Iron Co.... 51

W

†Washburn Wire Co. ..... —
†Washburn Wire Co., Inc. ..... —
*Weirton Steel Co. ..... 65
*Wellman Products Co. ..... —
*Wellman-Seaver-Morgan Co..... 81
Wemlinger Inc. ..... 79
West Leechburg Steel Co. ..... 66
†West Steel Casting Co. ..... 18
*Wheeling Mold & Foundry Co. 16
Whitcomb, Geo. D., Co. ..... 59
†Whiting Corp. ..... —
Williams & Co. ..... 76
*Williams, G. H., Co. ..... 59
Williams, J. H. & Co. ..... 53
Wood, Alan. Iron & Steel Co....63
Wood, R. D. & Co. ..... 45
*Woolford, G. Tank Mfg. Co. —
*Wyckoff Drawn Steel Co. .... —

Y

*Young, L. A., Spring & Wire Corp. ..... —
*Youngstown Sheet & Tube Co. 26



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*Bevelled Point*

*"Buckeye"*
*Tire Bolt*

*Oval Head*
*Lamson Ribbed*
*Carriage Bolt*

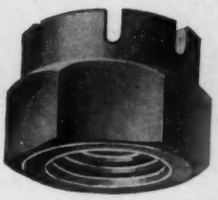
*Square Head and*
*Nut Lamson*
*Machine Bolt*

*Round Head*
*Stove Bolt*

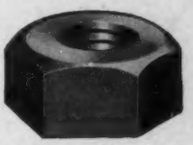
*Flat Head*
*Stove Bolt*

*Gimlet Point*
*Lag and Skein Screw*
*with Square Head*

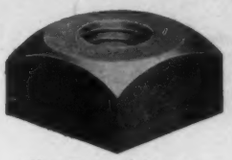
*Oval Head*
*Lamson Carriage*
*Bolt*



*Semi-Finished*
*Castellated Nut*



*Cold-Punched*
*Chamfered and Trimmed*
*Nut with Reamed Hole*



*Hot Pressed Square*
*and Hexagon Nut*

*Bull Dog Wire*
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*No. 3*
*Round Head Square Shank*
*Plow and Cultivator Bolt*
*with Forged Square Nut*
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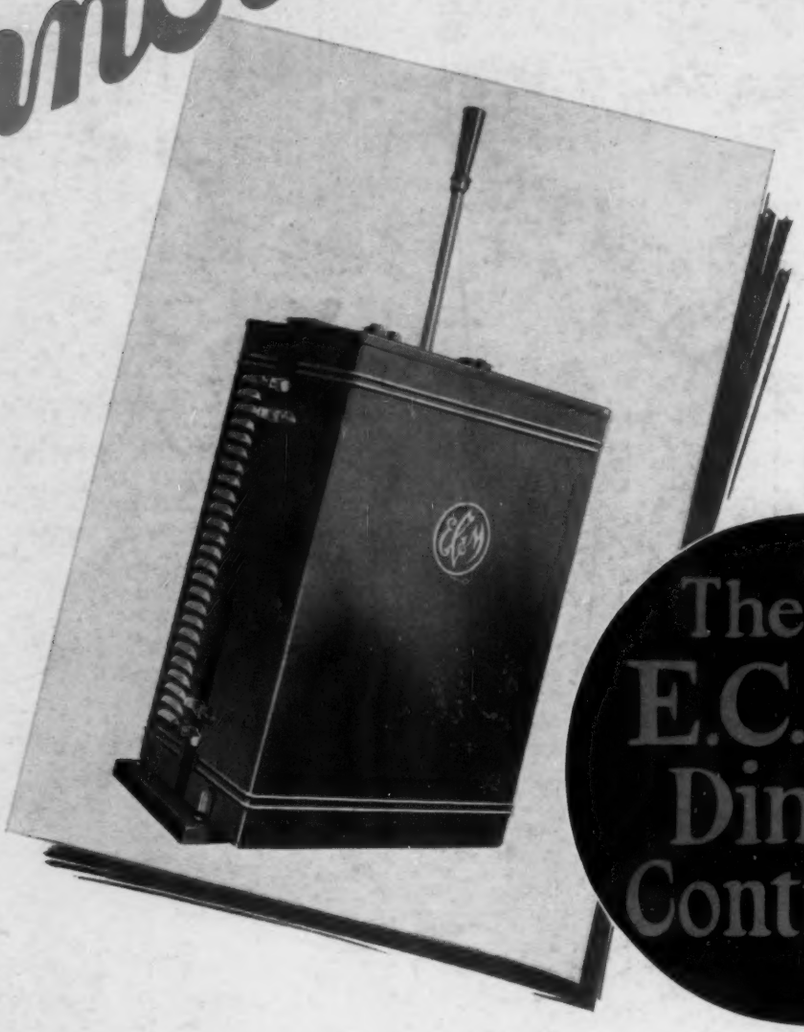

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